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CONTENTS

	PAGE
Editorial Notes	365
The Steel Industry, 1951	367
Netherlands Railways Civil Engineering	367
Railway Commercial Practice	368
Track Circuiting on Electrified Lines	368
Passenger Traffic Trends	369
Letters to the Editor	370
Publications Received	371
The Scrap Heap	372
Overseas Railway Affairs	373
Gauging the Useful Life of Rails	375
Flame Hardening of Locomotive Tyres	376
An 80-ton Machinery Wagon, C.I.E.	378
Recent Bridging Practice in Rhodesia	379
Power-Operated Crossing Gates in India	381
Stabilised Supply for Colour-Light Signals	382
Personal	383
News Articles	386
Notes and News	390

Quicker Action on Transport

IT seems unlikely that Parliament in its present session will have time to deal with a Bill amending the transport organisation on lines now being forecast. The promised Steel Bill apparently must take precedence over any projected Transport Bill, but this is hardly the order in which the two subjects should be dealt with considering their relative urgency. The steel situation, although scarcity persists, shows some signs of improvement, and supplies are expected to be better in the second half of the year. Difficulties with which the industry is contending are not primarily the result of the way in which it is at present organised. Little of an encouraging nature has been said about the financial future of the activities for which the British Transport Commission is responsible beyond Lord Hurcomb's recent advice to critics to await publication of the Commission's audited accounts before making gloomy prophecies, and his forecast of progress in all branches of the undertaking. The suggestion has been made that the 1950 deficit will be found to have been halved, but this cannot be confirmed until the accounts are published in June and the present accumulated deficit forbids much optimism. With costs continuing to rise, the urgency of organisational economies increases, as does the importance of implementing rapidly any

remedial schemes evolved from the present discussions. A method that could be adopted more swiftly than by waiting for a new Transport Bill to become law might be to operate through the existing Act. The various Executives now exercise functions delegated to them by schemes made by the Commission and approved by the Minister of Transport. Instruments may be issued effecting, revoking, or varying any such delegation of functions. By this means changes could be made, for example, in the individual responsibilities of regions and regional officers, with possible economies and increased efficiency in management, which might approach more closely to the pattern of the former railway companies. There is no doubt that as the public has learned more about the operations of the British Transport Commission through the recent fares controversy, it has had a disagreeable surprise over the limited extent to which the Minister of Transport has powers to intervene. There could hardly be objections, therefore, to the Minister exercising his power to approve schemes of reorganisation in the interests of improving efficiency as quickly as possible.

Tax on Enterprise

PUBLICATION of the Finance Bill last week has renewed criticism of the Excess Profits Levy, more particularly of the penalisation of enterprise by the 30 per cent. tax on profits exceeding the average for the standard period 1947-48-49. It has been computed that the levy will entail an increase of 10 per cent. in the total tax on an industrial company which has expanded normally since the standard years. Efforts to increase exports and productivity generally which result in even greater profits will be correspondingly penalised. The Chairman of the English Electric Co. Ltd., Sir George Nelson, pointed out at the annual meeting last week that his company had greatly increased its profits since the standard years because by heavy post-war capital expenditure on plant and research equipment, by intensive selling efforts in markets throughout the world, and "stupendous efforts" by its production executives it had considerably increased its turnover and had raised the percentage of its exports from 20 per cent. prewar to 50 per cent. of a vastly greater business today. It is difficult to see how national prosperity can be furthered by a measure which bears hardest on the most progressive concerns.

Award to Senior Salaried Staff

THE increases in pay awarded by Sir John Forster, Chairman of the Railway Staff National Tribunal, to salaried staff above Special Class categories and in receipt of less than £1,600 a year, is recorded on other pages this week. The increases taper down from some 8 per cent. on the lowest salary affected, £700 a year, to 4·5 per cent. at the higher end of the scale; the award is in response to claims by the Transport Salaried Staffs' Association and the British Transport Officers' Guild for a 10 per cent. increase corresponding to that demanded by the three railway trades unions for junior salaried and conciliation staff last summer. The latest increases are small enough in themselves, and will cost far less than the additional £3,000,000 a year of the award to railway shopmen recorded last week. The senior railwaymen affected, moreover, now find themselves subject in their dealings in salary matters to the rigid restrictions of grading and negotiating machinery primarily designed for conciliation grades who are free to defend their own interests by methods from which senior railway officials are necessarily debarred.

Winter Freight Traffic

WHEN the special winter freight movement plans were formulated last autumn, it was estimated that during the 30 weeks from October 1, British Railways would be required to lift some 5,000,000 tons more than in the previous winter. For the 20 weeks from October 7 to February 24, the total freight tonnage originating was 112,355,000, or 1·4 per cent. more than in 1950-51; it was 0·6 per cent. more than for the corresponding 20

weeks of the more normal winter of 1949-50. The increase over 1950-51 of 1,500,000 tons was almost entirely in coal (819,000 tons) and minerals (673,000 tons); compared with 1949-50, there were increases of 643,000 tons in mineral and 196,000 tons in coal class traffic, with a decrease in merchandise traffic of 167,000 tons. Whilst there is no indication of more merchandise offering, mineral traffic seems likely to remain at its recent high level. Clearances from collieries were restricted, in February, by some pits not working on Saturdays. The railways are now ready to resume carriage of coal diverted to coastwise shipping and the roads. At least until the severe weather during the past week, there has been recently no major factor restricting acceptance of traffic.

Rising Flood of Costs

A GRAPHIC if somewhat lugubrious metaphor was used by Lord Hurcomb, Chairman of the British Transport Commission, in portraying to members of the Mansion House Association on Transport the Commission's plight in the face of rising costs. More than once, he said, just as they were getting their heads above water, the floods came down afresh. The experience is common to all, and some may be comforted in their battle with the tide to know that among the shapes swirling dimly past are members of the British Transport Commission. They would have been submerged already, said Lord Hurcomb, but for technical and operating economies that had been achieved by the Commission on a substantial scale. His speech, reported elsewhere in this issue, said that rapid inflation of costs and delay in the ability to readjust charges accordingly was a problem afflicting transport in most parts of the world. Despite many inaccurate and one-sided statements to the contrary, they were not asking the London passenger to pay more than the cost of the services provided, and they were now beginning in the London area to yield the revenue required for the increased expenditure they had had to bear for so many months past.

Overseas Railway Traffics

FURTHER substantial advances in operating revenues and operating expenses were recorded by the Canadian National Railways during February. As in 1951, net revenue for the month showed a deficit. The increase in operating revenues amounted to £2,895,000 at £17,346,000, and expenses at £17,360,000 were up by £2,711,000; the resultant net operating deficit of £14,000, compared with £199,000 in the previous year. Aggregate net revenue for the first two months is now £702,000 lower at £56,000 and operating expenses have risen by £5,119,000 to £34,447,000. Gold Coast traffics were £72,800 higher during January, when receipts amounted to £382,363. Total traffics for the current 43 weeks were £2,854,481, as compared with £2,575,109 for the equivalent period of the previous financial year. At December 31, Salvador receipts for the six months from July 1, 1951, had advanced by C 114,000 to C 883,000. Traffics for December were C 2,000 higher at C 248,000.

Anglo-Irish Travel Delays

THE Home Secretary's statement in reply to a question in the House of Commons last week that the present system of control on passengers between Great Britain, the Republic of Ireland and Northern Ireland will be abolished as from Monday next may prove only a minor step towards expediting travel on these routes. This system has been in operation since 1939, and has made it necessary for travellers to produce either a British passport or a travel permit. Neither of these will be required by British travellers on and after April 7. On the eve of another holiday season it would be pleasant to feel that these changes might lead to a smoother flow of the valuable tourist traffic between the two countries, and the avoidance of the delays and friction of last summer, on which we commented editorially in our issues of August 24 and August 31, 1951. They leave untouched, however, the

question of Customs examination, which has been the main hold-up hitherto, as was acknowledged by a spokesman of British Railways in commenting on the new regulations to *The Irish Times*. Sailing tickets will still be required at heavy traffic periods, and are, indeed, a necessary means of regulating demand to the supply of transport.

Fares in Ulster to Rise

FARES and freight charges of the Ulster Transport Authority are to go up by 10 per cent., with effect from April 28. Counsel for the U.T.A. made the announcement at a sitting in Belfast last week of the Transport Tribunal, which is holding its inquiry into transport in Ulster. The chief reason given is the 7½d. increase in the petrol tax, which would cost the U.T.A. £150,000 more a year. Bus services had "carried" the rest of the Authority's services, but because of the increased taxation could no longer do so. Mr. A. Morrison, Chief Officer (Special Duties), U.T.A., subsequently gave £440,000 as the expected additional revenue, but added that some traffic might be lost, reducing the figure to £300,000. The difficulty was to induce the public to travel more by train. Housing development continued to favour the use of road rather than rail services, and railway stations were often much less conveniently placed than bus stations or shops. In Great Britain 51 per cent. of the passenger revenue came from the railways, but on the U.T.A. only 21 per cent. Mr. Morrison said that the railway season ticket rate for women—two-thirds of the normal rate—an old-established concession which must have been introduced out of "pure chivalry," would probably have to go.

Design in Transport

WORKING without guidance in the shape of formulated principles for industrial design, the engineers of the nineteenth century produced many locomotives that are acknowledged by modern experts in this art to have been aesthetically successful. Mr. George Williams, Industrial Officer (Transport) of the Council of Industrial Design, told the Institute of Transport recently that in his view much of the old tradition went by the board after grouping, but a modern locomotive as satisfying as any of the earlier machines could be seen in the former L.M.S.R. Pacific, Sir William Stanier, which was clean cut, powerful, and without unnecessary ornament. With regard to passenger coaches, Mr. Williams said that the smooth exterior design of modern stock was liable to make traditional colour schemes look dull and lifeless because of the absence of relief or play of light and shade. He favoured one-colour painting as seen in France and Switzerland. If horizontal bands of colour were desired, they should follow strong physical features such as the running board or cantrail. The speaker welcomed present tendencies on the main-line railways towards better amenities and appearance at passenger stations. As industrial design extends its influence in other fields of public service, it will merit close attention by all concerned with selling transport.

Works Involved by the Hunyani Dam, Rhodesia

ON October 29, 1951, the last train crossed the original bridge over the Hunyani River on the main line of the Rhodesia Railways from Salisbury to Bulawayo. The bridge is now dismantled as it and 3½ miles of track on its approaches will be submerged by water impounded by the Hunyani Dam. Altogether, it was necessary to construct a 13½-mile deviation to avoid the reservoir, including a new bridge over the river, described elsewhere in this issue. The old bridge, which consisted of two 100-ft. through truss spans and two 30-ft. approach spans, is providing valuable material for use elsewhere, some of it on the new Mount Hampden-Lochinvar line, the construction of which is now being begun. On the new Hunyani deviation two rock cuttings each about 1,300 ft. long and 30 ft. deep were necessary, and some 61,000 cu. yd. of rock and 170,000 cu. yd. earth had to be excavated. The urgency for the rapid construction of the new bridge and

other present-day circumstances suggested the unusual design and method of erection described in the article. It is estimated that their adoption has also been more economical than if a more normal type of bridge had been built.

A Failure of Block Working

THE accident between Pollokshields and Queens Park on April 21, 1951, was one of the unfortunate examples of the block telegraph failing to afford the required protection just when most urgently needed. As will be seen from our summary in this issue of Colonel R. J. Walker's report, an inexperienced man—technically still a learner—left alone in peak hours by another man absenting himself without permission, allowed his perfectly correct judgment to be overruled by the assertions of his fully experienced colleague at the box in rear. This resulted in a second train being admitted to the section with the first stopped there by loss of vacuum. The evidence of the experienced man was so unfavourable to himself that Colonel Walker could not take it at face value, and found it necessary to comment at some length on that and several other far from satisfactory features of the case which his inquiry brought to light. The worst aspect of it was the lack of discipline and sense of responsibility met with in some of those concerned, something which often can defeat the best types of apparatus.

Electric Locomotive Developments

FOUR new electric locomotives, each consisting of two units with multiple-unit control, are now in experimental service on the Pennsylvania Railroad. Two of them, of Westinghouse design, use the first application to a locomotive of the Ignitron type of mercury arc rectifier. Each twin unit, with the 2(Bo-Bo-Bo) or 2(Co-Co) wheel arrangement, is rated at 6,000 b.h.p. continuously, has 44-in. driving wheels, measures 124 ft. overall, and weighs 337 tons, as compared with the 205 tons of one of the standard Pennsylvania "GG-1" type 2-Co-Co-2 (4-6-6-4) locomotives now used on all the principal P.R.R. electrified services. Reference was made to the design of these two rectifier locomotives in our June 16, 1950, issue. The other two locomotives, of the General Electric Company's manufacture, are of a simple design in which every possible means has been used to reduce building and maintenance costs. The twin Bo-Bo units are rated at 5,000 b.h.p. continuously, have 48-in. driving wheels, measure 108 ft. 6 in. overall, and weigh no more than 219 tons each. The track is likely to benefit from the use of both types, because of the bogie suspension of their units, as compared with the articulated arrangement of the two driving wheel groups in the "GG-1" locomotives.

The Steel Industry in 1951

THE serious effects on British steel production of the shortage of scrap and other raw materials are mentioned in the British Iron & Steel Federation's annual report for 1951. Total production was less than the previous year, but at 15·6 million tons it was the second highest ever achieved in a year, and raw material difficulties alone prevented a record output. In economy in steel consumption, the report describes progress as "somewhat slow" in the field of railway transport. The Federation view of the impending denationalisation of steel is that "impartial supervision on broad matters of policy can better be exercised by a body which itself has no ownership-interest and is therefore free to take the widest view of national requirements . . . and that control by a board with a broad responsibility over the whole industry is preferable to the type of control created by the present Iron & Steel Act."

Allusion is made to British Railways' operating difficulties in the winter of 1950-51. Wagon availability, it is stated, was affected by heavy imports of coal and by diversion inland of coal normally exported. Home ore consumption in 1951 was 14 million tons, against 12·8

million in 1950. The Federation points out that the industry's demands on the railways rose much more quickly over 1950, as 1·7 million additional tons of home ore and some 150,000 tons of imported ore were railborne. There were local shortages of hopper-discharge wagons and, because of priority coal and other demands, of ordinary open wagons. The increase in the stock of steel-carrying wagons resulting from new building was somewhat offset, the report states, by slower transits. For iron ore movement, the railways' building programme of 1,900 27-ton wagons, of which about 1,500 were completed by the end of 1951, is estimated to represent 2·5 million tons additional carrying capacity over 1950. Liaison with British Railways effected by the Iron & Steel Joint Transport Committee of Railway Executive and B.I.S.F. representatives, as well as through the transport departments of member firms, continued close. The Federation was amongst the objectors to the Passenger Charges Scheme, 1951, in regard to the withdrawal of bulk travel vouchers and traders' season tickets.

An appendix shows that 215,000 tons of steel (2 per cent. of total deliveries) were delivered for British Railways' rolling stock construction and repair in 1951, 330,000 tons (3·1 per cent.) for rolling stock by other makers, and 285,000 tons (2·7 per cent.) for other specifically railway uses. To this, however, must be added the large quantities delivered to other industries, such as the electrical machinery industry, which ultimately are used for railway equipment both for home railways and for export.

Netherlands Railways Civil Engineering

ONE of two subjects discussed under the general heading, "Continental Railway Civil Engineering Practice," at the Institution of Civil Engineers on January 29, 1952, was "Observations on a Visit to the Netherlands Railways in 1950." The observations were made by Mr. J. G. F. Inglis, who spent four weeks in Holland under the interchange-of-staff scheme of the British and Netherlands Railways. The first part of his observations covers the organisation of the Civil Engineer's Department of the Netherlands Railways, with notes on the system of education of the staff.

On leaving school, the Dutch artisan does not become an apprentice as in this country, but takes a four-year course at a special trade school, though one of these years is spent away from the school as an apprentice. Students going to a University take a longer secondary school course, and engineers then go to the one Engineering University in the country, at Delft, where a five-year course in a particular branch of engineering is taken. The civil engineering course is comprehensive and thorough, but there is little mechanical or electrical background to it. The practical work normally done separately in the United Kingdom is included in the Netherlands academic education.

There are three grades of technical staff in the Civil Engineering Department of the Netherlands Railways. In the lowest, the platelayer, for instance, cannot normally rise to a higher grade than that of ganger. A second grade man joining as a draughtsman or inspector can become only a chief draughtsman or chief inspector because higher grades are attainable only by an engineering graduate who joins the railways as a junior engineer. The organisation of the department is as follows: Civil Engineer and Assistant Civil Engineer, and at headquarters nine sections, (i) General Office, Estate & Rating Surveyor and Staff Office, and (ii) to (ix) under a (ii) Bridge Engineer, (iii) Maintenance Engineer, (iv) Permanent Way Engineer, (v) Special Works Engineer, (vi) New Works Engineer, (vii) Architect, (viii) Track Construction Engineer, and (ix) Reinforced Concrete Engineer; also eight districts each under a District Engineer. New line and other survey work is carried out by Section (i), and the Track Construction Section is responsible for the construction, heavy maintenance and repair of earthworks and formation; the study and application of soil mechanics is an important integral part of its work. Heads of Sections and District

Engineers are of equal standing, and the eight districts correspond exactly with the Traffic, Mechanical and Electrical Engineering Districts. Section ix is unusual and interesting, and reflects the importance of reinforced-concrete in Holland.

There are three grades of Graduate Engineers, junior engineer, second class and first class engineer. Promotion in these grades is automatic, mainly by length of service. Selected first class engineers are promoted to be District Engineers or to take charge of sections, but they are—curiously as it seems to us—then designated Chief Engineers. In the headquarters sections, the Chief Engineers' assistants are known as Heads of Sections. There are about 60 graduate Engineers in the organisation. In the lower technical grades the younger inspectors and draughtsmen are interchangeable, but the older men specialise in one or other branch. The inspector, who joins the railways at about 22, is more skilled technically than his counterpart in the United Kingdom, but has less experience in handling labour.

Because of the comparatively small size of the Netherlands Railways system, much of the work performed in the district offices in Great Britain is undertaken by the head office sections in Utrecht. Apart from routine track maintenance, however, most of the outdoor work is done by contract. A special feature is an organisation resembling an independent contracting firm, controlled by the railway administration, but it is connected only loosely with the railway organisation, and its officers are not railway officers. Its value is that, as well as tendering for works in open competition, it is available for rush jobs and intricate work beyond the scope of the ordinary contractor. Also, it supplies extra temporary labour when required, an important asset because the numbers of the permanent railway staff in service cannot easily be varied according to the work in hand. The reason for this is that the permanent employees are regarded as essential workers, whose conditions of service are carefully supervised and controlled by the appropriate Government Department.

Railway Commercial Practice

THE importance attached today in railway commercial work to all that is meant by public relations, to salesmanship, and to study and anticipation of railway users' wants is apparent in the first of two volumes on "Railway Commercial Practice" by Mr. H. F. Sanderson. Volume 1, dealing with the general and passenger traffic aspects of commercial practice, is the subject of a short notice elsewhere in this issue. As Assistant Commercial Superintendent of the North Eastern Region and in previous appointments Mr. Sanderson has had ample practical experience of the matters which he studied in his development of the advanced course of instruction at the All Line Commercial School at Faverdale Hall, Darlington, of which he was Principal. Whereas the older textbooks dealt chiefly with the determination of railway charges and with the legal, statistical, claims, and accountancy aspects of commercial work, he has, besides discussing many of the more usual subjects, enlarged on borderline topics such as station and coach design, train services, and advertising; of the last two he has had additional experience in senior traffic and advertising appointments. In his preface, Mr. David Blee, Member of the Railway Executive for commercial subjects, refers to the completeness of the compendium which Mr. Sanderson has provided of the many activities embraced within the generic term "railway commercial practice."

The range of subjects rightly considered to be within the purview of the senior members, both officers and clerks, of the commercial department is wide. It is a pity, therefore, that Mr. Sanderson has not dealt specifically in his first volume with the compilation and interpretation of statistics. Without the ability to draw intelligent conclusions from figures submitted, and if in a position to do so, to determine what statistic is important and demand it—or work it out for himself—no senior commercial man can act on or even consider intelligently many of the excellent recommendations that Mr. Sanderson makes. Nor is there

mention of the modicum of passenger accounts work that falls to the commercial department.

In a changing economy, descriptions in a textbook of industrial features such as the steel industry, agriculture, concentrations of population, and even the organisation of the nationalised railway system, are bound to become obsolete fairly quickly, necessitating new editions; these features, however, are admirably, though succinctly, dealt with by Mr. Sanderson, as are the main features of the Transport Act, 1947. Where, however, he is at his best is in his treatment of matters which affect both the commercial and operating departments and too often are left to the latter. They include the type of passenger, parcels, or fish train, and refrigerated traffic facilities to be provided, with some pertinent opinions on through carriages, interval services, seat reservations, and other questions on which a commercial man ought to have definite views. Many will disagree with these opinions, although they are based on experience. It is good, also, that the commercial department should study *inter alia* the design of stations and rolling stock—the article, in fact, which the department sells to the travelling public. It is this consideration of all the implications of sale of transport—not merely price-fixing, the law, and claims—that makes Mr. Sanderson's work of value. If the commercial department of British Railways on the whole is more conversant with these subjects than its more strictly specialist equivalents on European and overseas railways, this is largely because of the breadth of the curricula in the various forms of railway technical education in Britain.

Track Circuiting on Electrified Lines

AMONG those responsible for the first applications of track circuiting on railways, the American, William Robinson, is regarded as the leading name, for he was certainly the first to patent the closed circuit shunted by the train to the danger condition. He and his contemporaries were not troubled by the effects of stray current, but electric traction changed the situation and although a railway might not be operated electrically, the presence of electric tramways in the vicinity could give rise—under certain circumstances—to unwelcome effects on the track signalling equipment. When it came to applying such signalling on lines themselves worked electrically, the problem was much more serious, and early attempts in this direction seem to have been confined to very short lengths here and there on certain of the then numerous inter-urban railways in America, where the aim was to obtain some intermittent form of control over signals. It was on the Boston Elevated Railway, however, that the first large-scale attempt was made to apply continuous automatic signalling controlled throughout by track circuiting, and to shield the working from false operation by stray current and voltage drop in the return circuit by using a special relay proposed by Struble, which had a polarised and a neutral armature, the former carrying a winding. When the line was opened on June 10, 1901, it was found that the theory on which this relay was based did not cover every contingency and that the signals could not be relied on invariably to afford all the protection needed against false clears.

This further problem was solved by an arrangement devised by the late Mr. H. G. Brown, later to become so well known in the British signalling industry, by which these relays were provided at each end of every track circuit section. This important step forward was taken in time to make satisfactory automatic signalling available for the District Railway in London, on electrification, and on the tube lines being built by the same interests as were concerned in that work. Identical equipment found its way to the Metropolitan Railway and everywhere gave excellent service. As reported in our February 15 issue the last of these relays, as re-designed by Mr. Brown, was withdrawn from service as recently as November 17 last year. The only other example of d.c. track circuiting protecting a similar service was apparently that seen for many years on what is now the Northern

City line, the success of which was due to using track repeater relays which became mechanically held in the dropped position until released by a last vehicle brush treadle contact.

Within two years of the work being carried to success in Boston, an application of a.c. to track circuiting had been made and gradually, in varying forms, this method became the accepted means of meeting the stray current difficulty. The Boston installation had necessitated giving up one rail to the signal engineer, but on many railways the traction engineer was not prepared to allow that and hence arose the problem of how to insulate for track circuiting purposes and retain continuity for the traction return. The solution to this came again from America in the invention of the impedance bond, which found application in the signalling of several important electrically worked lines, such as those running out of the Grand Central Terminal, New York. It first appeared in this country in 1912, when a beginning was made with re-signalling the Central London Railway, which at that date had no fourth rail. The more exacting train shunt margin called for by British conditions led to a careful study of the properties of impedance bond track circuits and the introduction of resonated and auto-coupled bonds, which apparently have not found much, if any, application in America. With the coming of the metal rectifier, further possibilities were opened up in the use of a.c.-fed track circuits. These and other details of this important topic were dealt with in a particularly instructive paper by Mr. D. G. Shipp before the Institution of Railway Signal Engineers on March 5, which cannot fail to have impressed his hearers with the amount of research and experiment involved in bringing the relays and other apparatus used today to so high a degree of reliability.

The paper also made apparent how important is the correct understanding of the electrical principles on which the design of such apparatus is based, if equipment on the line is to be kept in a state of satisfactory and safe adjustment, especially now that we have suffered a trouble not envisaged by the original inventors of these devices, namely, irregularity in the frequency of our power supplies. The paper was so complete and awakened so much interest that it was decided to allocate a whole evening to its discussion later in the session. It dealt with track circuits on d.c. electrified lines only, on which in fact the initial problem arose, but, as Mr. Shipp pointed out, with a.c. traction other factors enter into the case, and these no doubt will be further affected by the possibility of the 50-cycle system finding an appreciable measure of favour in the near future.

Passenger Traffic Trends

(By a Correspondent)

LAST year 1,001 million passenger journeys originated on British Railways, 19·6 million more than in 1950, or an increase of 2 per cent. The number of bookings was a record for the nationalised system, but was 7 per cent. below the 1947 figure of 1,077 million and 22 per cent. below the 1937 total of 1,295 million. Much of the credit for last year's result is due to the Southern Region, which originated 387 million passenger journeys, 38 per cent. of the aggregate for British Railways and 11 per cent. above the Southern Railway's 1937 figure of 348 million. Over the same period of 15 years, journeys on the rest of the railways decreased by 35 per cent. This sharp contrast in the development of rail travel shows how natural and economic conditions combine to make the Southern Region a unique field for electric traction.

Unfortunately passenger revenue did not expand last year in the same ratio as carryings. The aggregate of the monthly receipts published in *Transport Statistics* was only £450,000 higher than in 1950 (0·4 per cent.). These extra earnings were equivalent to a payment of 5d. for each additional journey, 2d. less than the average price of a workmen's ticket. The poor financial showing is the outcome of the tendency, during the lifetime of British Rail-

ways, for travel at high fares to diminish rapidly and for travel at low fares to grow in volume. A review of the business done at each of the six fare categories will explain what happened last year. The three classes representing substantial charges will be examined first.

Full fares were paid by 75,061,000 passengers, an increase of 18,350,000 (32·4 per cent.). The whole increase occurred in the Eastern and Southern Regions, because of certain adjustments in short-distance fares within the London suburban area. These changes reduced the average full fare paid, from 55d. in 1950 to 42d. and total receipts rose by only 2·4 per cent. to £13,409,000. Monthly return fares were paid by 123,269,000 passengers, a decrease of 44,760,000 (26·6 per cent.). The average amount paid advanced from 68d. in 1950 to 85d. and the total receipts of £43,843,000 were lower by only £4,219,000 (8·7 per cent.). Other special fares, such as those for service duty and furlough, were paid by 49,190,000 passengers, an increase of 1,514,000 (3·2 per cent.). The average receipt per journey of 92d. was 6d. more than in 1950. Total receipts rose in consequence by £1,706,000 (10 per cent.) to £18,956,000. Altogether 247,520,000 journeys were made at these high fares, 24,925,000 fewer than in 1950 (9 per cent.). Total receipts were £76,208,000, a decrease of £2,195,000 (2·8 per cent.).

Surveying next the three low fare categories, we find that excursion, weekend, and similar cheap tickets were issued for 253,594,000 journeys at an average price of about 15d. That was an increase on 1950 of 43,025,000 journeys (20·4 per cent.). Receipts rose fairly well in proportion by £2,476,000 (18 per cent.) to £16,194,000. Early morning and workmen's tickets, costing about 7d., were issued to the number of 218,840,000, a decrease of 2,504,000 (1·1 per cent.). Receipts rose by £56,000 (0·8 per cent.) to a total of £6,386,000. Season ticket journeys numbered 281,710,000, an increase of 4,017,000 (1·4 per cent.). The average receipt per journey of about 10d. was nearly the same as in 1950. Total receipts rose by £113,000 (0·9 per cent.) to £11,795,000.

Altogether 753,788,000 journeys were made at these low fares, an increase on 1950 of 44,538,000 (6 per cent.). Total receipts were £34,375,000, an increase of £2,645,000 (8 per cent.). This cheap travel last year accounted for 75 per cent. of the total passenger journeys on British Railways, but produced only 31 per cent. of the aggregate passenger receipts. Since 1948, British Railways have encouraged this side of their passenger business. By carrying 143,600,000 more people in 1951, they improved their takings from cheap travel by £10,146,000. These gains were cancelled by the loss of 138,342,000 passengers at high fares since 1948, with a drop in revenue of £25,424,000. On balance British Railways were £15,278,000 to the bad in 1951 compared with 1948 and are in danger of losing their grip on the classes of travel that earn the highest revenue from each passenger carried.

This conclusion is confirmed by the downward trend of first class travel. Last year, the number of first class journeys was 24,487,000, a decrease of 584,000 from 1950 (2·3 per cent.). Receipts accruing were £11,383,000, a decrease of £479,000 (4·0 per cent.). The decline has been continuous since nationalisation. The number of journeys in 1951 was 16 per cent. below 1948 and 49 per cent. below 1937. Receipts tend to fall faster than the number of journeys; in 1951 they were 27 per cent. below the 1948 takings. The position is not always the same in all Regions. While the London Midland Region lost 542,000 first class passengers last year, the Western gained 45,000 and the Southern 128,000. All Regions, however, shared the decreases in the three previous years and it is probable that too much first class accommodation is provided on many trains.

The foregoing analysis of passenger traffic trends does not reveal a bright outlook for the future. If existing tendencies continue, the one-time profitable branches of passenger business may cease to yield a fair return. There seems to be need for considering afresh the development policies which the department has been pursuing. An increase in the number of passengers is not enough. What matters is an increase in net revenue.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Railway Carriage Design

March 1

SIR.—May I comment on Mr. Inglefield's letter in your February 22 issue?

Has Mr. Inglefield heard of the "Flying Scotsman," the "Cornish Riviera," the "Atlantic Coast Express," not to mention other all compartment trains whose names are also household words? Do all these trains run empty? They were introduced before the first world war, and others have been placed in service since 1945.

In answer to his question, "do all these trains run empty?" I say that all of them are never full, especially the "Queen of Scots" and the "Tees-Tyne Pullman." The trains that Mr. Inglefield mentions are only a small number running between London and either industrial or business residential areas. To travel in them one has to pay a fee in excess of the pocket of the normal fare-paying public, but on a normal train service the passenger is hard put to it to pay for an ordinary ticket. It is primarily to attract the inexperienced traveller who likes his privacy that the carriages of today are designed.

The enquiry which the former L.N.E.R. conducted among its passengers on their choice of open or compartment stock resulted in an almost exclusive construction of compartment stock.

I also made considerable use of the Bognor and Portsmouth electric services a short while ago and always found conditions the reverse to those that Mr. Inglefield noted. As to his observations on coaches with end doors, and coaches with doors along the length of the corridor, on one side only, I suggest that he takes the trouble of inspecting the new side-corridor coaches himself.

Yours faithfully,
B. E. FISHER

2, Lilly Cottages, Seven Kings, Essex

March 19

SIR.—I welcome the support recently given in your correspondence columns to the idea of trying the American system of coach seating on British Railways. I am glad to see from Mr. Pascall's letter in your March 14 issue that the American-built *Silver Princess* coach has not been forgotten altogether. When it was being worked in the "Flying Scotsman" we were told that many similar vehicles were to be produced over here under licence from the Budd Company, but nothing seems to have come of the project. This vehicle was remarkable for the way in which typical American accommodation had been compressed into the narrower British loading gauge without apparently sacrificing any of the comforts and amenities associated with American stock, and it provided the complete answer to those who say that our rolling stock is too narrow.

One wonders if the Railway Executive may have objected to the use of such coaches in Britain on the grounds that they would have raised the standard of third class accommodation so much as to reduce the advantage of travelling first class until it no longer commanded the 50 per cent. fare premium. If that were so there would be a good reason for trying another American idea, this time for first class accommodation and making an English version of the roomette. For business men and others who have to work during journeys the guaranteed privacy of these small single compartments would surely be much appreciated.

I have little doubt that they could easily be operated at supplementary fares comparable with those now charged for first class sleepers. For most British trains the roomettes would not need the folding beds and toilet fittings provided in America. They could approximate to the American counterpart when prepared for day use, by having one comfortable fixed seat and room for a

movable chair so that two could be accommodated occasionally.

Cost is obviously of paramount importance, but I doubt if a vehicle like the *Silver Princess*, which also had highly advantageous structural features, would cost more than a standard British Railways coach, and a coach of roomettes is not likely to be more expensive per passenger space than a first class sleeping car.

Yours faithfully,
W. R. D. MANNING
Red Cottage, Townsend Avenue, St. Albans

Effect of the Increased Petrol Tax

March 24

SIR.—Now that there has been time for us to examine the full implications of the recent Budget I should like to question the suggestion in an editorial note in your March 14 issue that the increase in petrol tax may cause some motorists to revert to rail travel.

It has always seemed to me that the private car occupies, on the passenger side, a similar position to the "C" licence vehicle on the freight side; they are our principal competitors. The motorcar presents the would-be traveller, who is fortunate enough to own one, with an unrivalled means of transporting persons and luggage from door to door, and it may be that the advantages of motoring, especially to the family man, are sufficient to outweigh an even heavier burden than has yet been imposed on this section of the community. I think the average motorist will, if necessary, economise in other directions rather than forsake the independence of travel by car.

In fact, I would venture to suggest that more "occasional" traffic may be lost to the railways as a result of the effect of a higher cost of living on the lower income groups than will be gained by the return of a few established motorists to rail.

Yours faithfully,
ROY VINCENT
83, Marlands Road, Ilford

Missed Connections

March 28

SIR.—Mr. Cecil J. Allen's recent experience at Doncaster recalls a similar incident in which I was involved at the same station. I was travelling from Kings Cross on the 5.30 p.m. "Yorkshire Pullman" to Sheffield via Doncaster. This means changing at Doncaster and catching a cross-country connecting train from Cleethorpes which leaves Doncaster at 8.34 p.m.—10 min. after the "Yorkshire Pullman" is due to arrive.

On this occasion, one of the Pullman cars developed a hot box and had to be detached at Grantham, and a British Railways coach was substituted. As a consequence the train was some 25 min. late in arriving at Doncaster. I was extremely surprised to find, in company with several other passengers, that although someone in authority at Doncaster must have been well aware of the incident and late running of the "Yorkshire Pullman," the connecting train had been allowed to leave on time with no consideration for the passengers travelling to Sheffield on the "Yorkshire Pullman."

In response to our enquiries about a connecting train—and it transpired there was none till early next morning—the station inspector was most off-hand and impolite and completely inconsiderate of our difficulty. In fact, he did nothing to help us on our way to Sheffield. Accordingly, I hired a taxi.

I took up this matter with the Eastern Region and received a cheque for my additional expenses in hiring the car. I do not know how the other six passengers fared. I

think this further incident adds to Mr. Allen's justified complaint that something wrong exists at Doncaster.

Yours faithfully,

E. N. BAYS

58, Wood Lane, London, W.12

Informing the Passenger

March 5

SIR.—On February 29, just before the 5.48 p.m. train to Orpington entered Blackfriars Station, the loudspeaker announced, "Next train from No. 4 platform, rear four cars only for Orpington." Many people thought that this curt announcement meant that the first four cars would not go right through and that the train would be divided somewhere intermediately. As this train normally goes out with standing room only, even with eight coaches, when it came in some passengers entered the first four coaches, content to change later if necessary, rather than fill the rear half to bursting point.

The train was, however, divided at Blackfriars and porters had to open nearly every door in the front half and ask the people to get out again; it was then brought forward and backed into No. 1 platform, and the rear half finally departed 7 min. late.

If the officials had only taken the public into their confidence and stated that the train was to be divided and that the first four coaches would not be going forward, time would not have been wasted while passengers were being turned out by porters, and the loss of 5 min. at the height of the rush hours would have been avoided.

I do not attribute this lapse to nationalisation, as I fear that it has always been a failing of the railways in Britain to give passengers inadequate information. This is in con-

trast to the attitude in the U.S.A., where "the passenger is always right," and he expects, and gets, an immediate apology for any untoward delay, a frank admission of the cause, and an early account of the steps being taken to deal with it.

Yours faithfully,
G. M. BARRETT

30, Pilgrims Way East, Otford

A Tramway Museum Needed

February 3

SIR.—Your report on the proposed Irish tramway museum in your February 1 issue invites attention to similar activities here at home. Railway relics have long enjoyed official protection, but the need for a tramway museum has not yet been recognised, although not only the vehicles but the mode of locomotion are becoming extinct over wide areas. The tramway has contributed much to urban life and development; surely it deserves some recognition of its place in our industrial history?

As in Ireland, official inactivity has resulted in action by individuals, and seven historic electric trams, with an average age of 48 years, have been privately preserved, but further progress is barred by lack of funds. The immediate need is for storage space and sheeting, but if any readers can suggest means of achieving our ultimate aim of a museum tramway we shall be very grateful. Details of our present activities may be obtained from the Hon. Treasurer, Light Railway Transport League Museum Committee, 62, Dover Street, Higher Crumpsall, Manchester 8, or from myself.

Yours faithfully,
J. H. PRICE

15, Kingslyn Crescent, London, S.E.19

Publications Received

Industrial Directory of Wales and Monmouthshire, 1952. Cardiff: Industrial Association of Wales & Monmouthshire, Aberdare House, Mount Stuart Square. 10 in x 7½ in. 339 pp. Price 10s. 6d. net.—The first edition of this directory was published in 1948. Since then many more industries have been established in Wales and Monmouthshire, and the new edition contains information on them, as well as on those long settled in the area. The editorial features have been completely revised and re-written. The result is an authentic guide to industrial development in the Principality. Mr. H. H. Swift, South Wales Area Officer, British Railways, writes about the expansion of railway facilities now taking place to serve such industrial needs as those of Nantgarw and Margam, and those proposed. Other articles cover road haulage, South Wales ports, and the slate industry. Products and services are classified alphabetically, and there is a section listing names and addresses of firms, with their products and services.

Railway Commercial Practice. Vol. I: General and Passenger. By H. F. Sanderson. London: Chapman & Hall Limited, 37, Essex Street, W.C.2. 8½ in. x 5½ in. 257 pp. Illustrated. Price 25s.—This volume, the subject of editorial comment on page 368, and the one that is to follow it, are intended by the author, now Assistant Commercial Superintendent, North Eastern Region, to provide a permanent record of the

instruction in advanced commercial work which he developed as Principal of the All Line Commercial School at Faverdale Hall, Darlington, from its foundation by the L.N.E.R. in 1946, to 1949. Mr. David Blee, Member of the Railway Executive for commercial matters, contributes a preface. The range of subjects dealt with is wide. General subjects include railway education; industrial features such as distribution of population, new towns, development areas, and characteristics of principal industries; and railway legislation. Amongst the passenger traffic subjects are the branch line problem; transport of fish; seat reservation, through carriage, and Pullman facilities; and air and road passenger transport. The usual commercial subjects, such as public relations, fares, and office methods, are also discussed.

Railway Symposium, 1951. — British Timken Limited has brought out this book to commemorate the British Timken railway symposium held at its Aston and Duxton works on May 21, 22 and 23, 1951. During the symposium, which was attended by prominent mechanical officers from ten overseas railways, six papers were read on aspects of the design and application of British Timken roller bearings and axleboxes. On the third day the works of the Metropolitan Cammell Carriage & Wagon Co. Ltd. were visited. The text of each paper and a summary of some of the discussions, are given in the publication. The many illustrations show visitors inspecting operations during

their tour of the works, roller bearings and axleboxes in stages of manufacture, and examples of locomotives and rolling stock equipped with roller bearings. Roller bearing assembly diagrams and diagrams showing case hardenability data, average bearing lift curve, load lift curve, and so on, are included. The book is most attractively produced and forms a worthy record of an enterprising venture.

Woodworking Machinery.—An illustrated catalogue which includes descriptive matter and capacities of their various woodworking machines has been published by Thomas Robinson & Son Ltd. The machines include log band, re-cut and circular saws. Also included are details of saw sharpening and saw doctoring equipment, together with railway sleeper incising machines which provide for a better penetration of creosote preservative. In each case the capacity of machines is given as well as shipping specifications in tabulated form. For the purpose of ordering machines symbols are used to indicate requirements.

Summer Holiday Guides.—We have received from Thomas Cook & Son Ltd. two new illustrated guides dealing respectively with summer holidays in Spain and Portugal; and in Austria and Germany. Two information leaflets have also been produced for intending visitors to Italy and Switzerland, in which practical guidance is given on spending a holiday within the limits of the £25 foreign travel allowance.

THE SCRAP HEAP

Minister for Civilisation

Mr. J. S. Maclay, Minister of Transport and Civil Aviation, told guests at the Mansion House Association on Transport on March 28 of a reaction to his appointment in his family circle. A small niece asked her parents, "is it true that Uncle Jack has been appointed Minister of Transport and Civilisation?"

Fares by Instalments

When two natives of Belfast appeared in court on remand for travelling on the railway without paying their fare a probation officer said: "They say it is the custom in Ireland to travel on the railway one day and pay the fare in instalments in the future. They say they intended to pay when they got work." —*From "The Evening News."*

Catching the "Jerks"

A representative of *The Scotsman* recently visited Leith Central Station for the first—and probably the last—time, for the station closes on April 7. He found it "a huge station that looks like a metropolitan terminus, despite the fact that it has only four platforms. When a gale is blowing off the firth the whole roof rattles and groans because of wooden slats which have replaced the original ones. The Central has no bookstall and no refreshment room, although we were told that there was a tavern immediately beneath the spot on

Handing-In Day



Porter Thomas Claxton, employed at Isleworth Station, Southern Region, bringing his entry to the Royal Academy exhibition. His picture of Loch Ness at Foyers was painted while he was on holiday last year

which we were standing. The waiting-rooms, on the other hand, are handsome in a gaunt kind of way.

"There was a melancholy air of impending dissolution in the Central. A train was being prepared to go out on its journey through the suburbs. There is only one full-scale train a day from the Central—the 12.45 to Glasgow. At one time trains for both Glasgow and Dundee were made up at the Central, from which some of them formally left.

"The great days of the Central were when the "jerks" were running. These lively trains left at half-hourly intervals for Edinburgh and took six minutes on the outward and five minutes on the inward journey."

Privilege Tickets

High Court judges, when travelling more prosaically by train, are provided with reserved carriages, a privilege they share with lunatics, verminous persons, Cabinet Ministers and corpses. This glittering reward is not alone likely to prove an adequate incentive for recruitment to the Bench, particularly when combined with a salary which has not been increased for more than a century.—*From an article in "The Daily Telegraph."*

Iron Road

In 1950 the output of grey iron and malleable iron castings used on British Railways was 277,638 tons—116,766 for locomotives and rolling stock; 143,421 for the permanent way; and 17,451 for other equipment. Those who overlook the importance of cast iron in railway work may revise their views in the light of a fantasy in a booklet, "Founded on Fact," recently published by the Council of Ironfoundry Associations. The author opens in amusing vein by picturing a Britain suddenly deprived of cast iron. The effect on the railways is disastrous, for many station roof supports collapse and every rail chair and all rolling stock axleboxes vanish.

Personality Express

Where do you find the richest gallery of characters under one roof in London? The Savoy? The Corner House? The Windmill? No, I would pick my composite picture from The Brighton Train.

For those who ride The Brighton Train provide individual flavour that is somehow different from all other trains in Britain.

It is where Suburbia gets the Broadway Touch and The Cockney sits opposite The Countryman.

The London-based Sporting Gentlemen share a first-class carriage (at least until Haywards Heath) with The Country Type of Sporting Gent.

The Sussex dialect of the fresh-faced Farmer mingles with the Runyonese of the Card-Players.

Because if Brighton is a dormitory

town, it is also The Seaside, the place for a night out, or a day at the races.

Whatever the reason for the ride, you're going from one cosmopolitan centre to another. Outside of London, there is no place as city-slickish as Brighton. And there's no train like The Brighton Train. —*From "The Eve Perrick Column" in the "Daily Express."*

Straight Line Streamline

If railway trains could travel from point to point in a dead straight line, free from cross winds, higher speeds might be obtained and streamlining prove of great value, but to streamline a train travelling in anything but a dead straight line and under imperfect conditions is no less than ridiculous.—*From a paper by Mr. George Williams to the Institute of Transport.*

Round the Station—2

Branch Line Bill

Branch Line Bill descended from his engine,
Wiping his hands on a bit of oily waste;
"You can have your 'Belles' and your
main line expresses;
'Saddle-tank Sally' is more to my
taste."

"I've got pals in Freddie, my young
fireman,
Teddy the shunter and Charlie the
guard;
I wouldn't swap them for all the tea in
China,
Nor all the coal in the station yard."

"I love the views across the water-
meadows,
The glad, green glory of a springtime
hedge,
The sweet, wild rose and the scent of
honeysuckle,
The clean, cool winds that whisper in
the sedge."

"Ambling along, doing twenty-five to
thirty,
Passing the gardens of people dear to me.
I give them a toot on my whistle to re-
mind them
It's time to put the kettle on and lay the
tea."

Far away, you can hear Bill's engine
whistle,
Warning the cattle that they, too, have
a date;
And all the cows in Farmer Jones's
meadow
Come up to greet him at the crossing
gate.

Branch Line Bill, when you're signed off
at the depot,
And the red line's ruled across the
crowded page,
The old branch line will be mourning in
the shadows
The fading fragrance of a dying age.

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Surplus Expected

The financial year 1951-52 is expected to end with a net surplus of £7,606,000 sterling, compared with the previous financial year's surplus of £8,470,000. Mr. P. Sauer, Transport Minister, announced this figure when presenting the railway budget to the House of Assembly. He said he proposed to make a special contribution from the surplus of £2,000,000 for rolling stock assets.

NEW ZEALAND

Direction of Labour to Railways

Mr. D. A. Clarke, Transportation Superintendent, New Zealand Railways, has suggested to the Royal Commission on Railways that a recommendation should be made to the Government to introduce direction of labour to the railways. This would be a possible means of overcoming the staff shortage, which is the chief cause of operating problems. An alternative, said Mr. Clarke, was to try to obtain suitable staff for the railways from overseas. There would be some improvement if enough houses were allotted to the department to attract recruits and to allow transfers to districts requiring men.

Mr. A. H. Murison, Chief Civil Engineer, said that it was disturbing to find that between 1945 and 1952, 24 of the department's engineering staff had resigned to take up more attractive positions. "The real engineering strength of the department lies in the number of

fully-qualified engineers, and eleven of those who resigned were fully qualified," said Mr. Murison.

UNITED STATES

Aircraft Building at Coach Works

By arrangement with the Douglas Aircraft Company the American Car & Foundry Company is to fabricate sub-assemblies to be used in the manufacture of the "B-47" bomber aircraft. The project will not interfere with the normal activity of the works.

Union Pacific Gas Turbine

For some time the Union Pacific has had on trial a gas-turbine-electric locomotive built by the General Electric Company of America; it has been under test with freight trains, particularly over the main line west of Cheyenne, which reaches an altitude of 8,013 ft. at Sherman, Wyoming. These tests have been so successful that the U.P. has on order ten further locomotives of the same type, the first of which has been delivered recently. It is of the B-B-B-B type, articulated, 84 ft. in length and with a tractive force of 105,000 lb., and weighs 248 tons (of 2,240 lb.). The original locomotive had driving cabs at both ends, but the new series will all be single-ended.

Speed Control on the Long Island

A total of \$6,000,000 is being spent by the Long Island Rail Road on the installation of a new system of signalling, which provides three visible signal indications in the driver's cab—green for maximum authorised speed, yellow for a

reduction to 30 m.p.h., and red for a reduction to 12 m.p.h. in preparation for stopping. The indications are conveyed from the signals to the locomotives and electric motor coaches by coded circuits passed through the rails; these are picked up inductively through receiver coils and fed through electronic detector and amplifier valves to relays which not only cause the cab lights to function, but also sound warning whistles in the cab and make automatic brake applications if the driver does not take action within 5 sec. of receiving the restrictive indication.

The equipment is being extended to 165 miles of track, and fitted to 355 multiple-unit coaches with driving cabs, and 42 locomotives. The Long Island carries a very heavy traffic in season ticket holders into and out of New York, estimated at 300,000 passengers daily, mainly in 12-car multiple-unit electric trains.

ARGENTINA

State Transport Undertaking

By virtue of a recent decree, all State-owned transport has been absorbed by a new body known as E.N.T.—*Empresa Nacional de Transportes* (State Transport Undertaking). The railways, airlines, ocean and river shipping, Buenos Aires transport and all subsidiary enterprises now form part of the new organisation, at the head of which is a board composed of a president and six members. The president is the Minister of Transport, and three of the members are the under-secretaries. The other three members are named by the Minister of Transport

Presidential Communications Coach



Communications coach provided by the United States Army for the Presidential train, enabling the President to keep in touch with Washington when travelling by train

from the general managers of the administrations forming the E.N.T.; while each has complete autonomy as far as operation is concerned, all questions of policy, co-ordination, amalgamation and finance are decided by the E.N.T.

MEXICO

Creation of New Department

The National Railways are to create a technical department of motive power and machinery to plan and direct the repair and reconstruction of locomotives, rolling stock, and plant.

Just over five years ago there was only one mechanical engineer to handle technical problems and supervise 20,000 workers engaged on the maintenance and repair of approximately 1,000 locomotives, 1,000 coaches, and 30,000 wagons, as well as repair and manufacture of numerous accessories and parts.

The department will study and appraise the possible increases in the demand for railway transport in the next twelve years, and the depreciation of locomotives and rolling stock; establish a programme of acquisition and repair; and determine the annual amount of materials needed for an adequate repair programme. It will also supervise work in repair shops, ascertain that repair shop technicians have adequate knowledge of and skill in maintaining repair installations and overhauling equipment, and draw up plans for more efficient production methods and specifications for the acquisition of new equipment.

BRAZIL

Brazil-U.S. Development Commission

The President has approved the emergency projects submitted by the Brazil-United States Development Commission for the re-equipment of the broad-gauge railways. The cost is estimated at U.S. \$42,000,000 for imports and 742,000,000 cruzeiros (£10,840,000) for labour and materials to be purchased locally. Consideration of the requirements of narrow-gauge railroads will follow.

Because of the heavy expenditure involved the Minister of Finance suggests allotting to the Railway Reform Programme, within the next five years, 6,000 million cruzeiros (£120,000,000) in national currency and 4,000 million (£80,000,000) in foreign currency.

A preliminary estimate places the total number of locomotives required at 360, not counting 20 diesel-electric machines already ordered for the Parana-Santa Catarina system. Local manufacturers of railway material, fearing that the majority of orders would be placed abroad, have sent a report to the President, explaining that they can supply much of the equipment required.

The Brazil-United States Commission, to which the report was submitted, replied that the convenience of importing or not did not come within its scope and must be judged by the rapidity with which the government

wishes to equip its railways. In approving the projects now submitted Dr. Vargas agreed that the Santos-Jundiai and Paulista railways should call for tenders to import broad-gauge wagons, and that the Central Railway should import wagons for transporting heavy minerals. Other wagons, he decided, may be ordered locally, subject to satisfactory conditions of price and time for delivery.

The national railways have been instructed to apply for the foreign currency loans, required to carry out the approved projects, as soon as the international banks notify that they are ready to begin negotiations.

SAUDI ARABIA

Staff Trained in U.S.A.

Twelve Saudi-Arab trainees of the Government Railway have completed a two-week course in operation and maintenance at the Alco-G.E. diesel-electric locomotive school at Schenectady, New York, which was established in 1946 to acquaint railwaymen with the construction, operating, and maintenance problems of the diesel-electric locomotive. They undertook a tour of the U.S.A. railways and locomotive manufacturing facilities, and visited Detroit, New Haven, New York, Philadelphia, and Washington.

SYRIA

Damas Hamah & Extensions Railway

Negotiations are in progress between the Syrian Government and the Damas Hamah & Extensions Railway on the nationalisation of the section of the railway within Syria. Monsieur de Biederman, Deputy Chairman of the Régie Générale de Chemins de Fer et Travaux Publics, and chief administrator of the railway, and Monsieur Bourguignon, manager of the company, have been designated the representatives of the railway.

The most critical problem to be solved has proved to be fixing the value of the assets which the company would have to make over to the Syrian Government. The concession, dating from 1891, and covering both Syria and the Lebanon, terminates only in 1997, with an option for the Government concerned to repurchase from 1948. Syria has decided to avail itself of this option, but the Lebanon has not yet decided.

The concession stipulates that the company would be entitled to receive up to 1997 an annuity equivalent to half the average of the gross receipts in the last five years before repurchase. The Government would have to buy the motive power, rolling stock and stores from the company.

If the Syrian Government accepted these conditions the annuity payable by it to the company up to 1997 would amount to some £Syr. 2,500,000 (approximately £407,815). In addition, it would have to pay cash for the locomotive and rolling stock, buildings,

track, bridges and other works, as well as stores. As these conditions are deemed by the Syrian Government too onerous a compromise is being sought. The working losses incurred by the railway have been shared equally by the Syrian and Lebanese Governments.

DENMARK

Introduction of Cheap Tickets

Faced by growing competition from buses and cars for hire the State Railways have decided to introduce new cheap tickets instead of a general lowering of fares.

To encourage spreading holidays over a longer period the railways will now issue special holiday tickets, only available for the periods May 3-June 17, and August 23-September 30. They will be issued only for journeys of over 90 miles and the return journey cannot be made earlier than one week after. The tickets will be 25 per cent. cheaper. One break on the return journey is permitted.

It has hitherto been the rule that a rebate is allowed to parties, but from now individuals will be able to buy cheap return tickets within a defined area, on certain days or periods and probably by certain trains.

IRELAND

Payment of G.N.R.(I.) Apprentices

The Labour Court in Dublin has recommended the G.N.R.(I.) to apply the scale now operating on C.I.E. to all its apprentices employed at depots in Republic of Ireland. The recommendation followed an application by ten unions for the payment of the same scale to G.N.R.(I.) apprentices at Dundalk as that paid to those employed by the Company in Dublin. At present the Dublin apprentices are paid 2s. 6d. more. All C.I.E. apprentices are paid on the same scale no matter where they are employed. The Court stated that there was little to be said in favour of establishing and maintaining a trivial difference of pay between the Dublin and Dundalk apprentices.

New Plant for Inchicore Works

C.I.E. has acquired an automatic-welding machine, the first of its type in Ireland, incorporating the submerged method of welding. It is being installed at Inchicore works. With this method of welding the operator is protected from the glare and the use of the shield is not necessary. The new machine not only gives the operator better protection but enables him to produce better welds in less time.

C.I.E. is also buying an automatic electric tube expanding and cutting machine which will be of great benefit in the boiler shop and expedite the removal of tubes. Making the work less laborious, the new machine will also ensure even pressures in the expanding of both large and small tubes. For use in the preparation of coach interiors prior to polishing, pneumatic sanders are also to be acquired.

Gauging the Useful Life of Rails

An apparatus needing no attachment to the rail

(From a Correspondent)

THE railway engineer's need of some practical means for determining the useful life of a rail is shown by the number of devices which have been produced for this purpose. The defects of existing methods, so far as known to the present writer, are the result of their requiring some semi-permanent attachment to the rail, and operations are therefore liable to be interrupted by traffic. They are also apt to be slow and laborious, particularly in adverse weather conditions.

When considering a problem of this sort one should be clear what exactly is the result aimed at. It is conceivable that previous efforts would have been more fruitful if concentrated on relative rather than on absolute accuracy. The fitness of a worn rail to continue in use depends first on its retention of a sufficient margin of strength above that required to carry the loads, and secondly on its not being so deeply side-worn by the wheel flanges as to give rise to a risk of wheel-climbing.

In scientific parlance the rail is a continuous beam and its transverse strength can be calculated only under ideal conditions, that is to say when it is assumed to be supported on a series of knife-edges all in the same plane. These conditions are never realised in practice. The supports are anything but knife-edges and their relative levels are indeterminate.

To solve the equations the amount and position of the reactions must be fixed by assumptions which accidental circumstances may completely vitiate. A patch of soft bottom, a centre-bound sleeper or two can cause the stresses to vary perhaps 50 per cent. from those arrived at by computation. As for wheel-climbing, calculation is bedevilled by casual factors such as bogie hunting and stiffness, rolling and elbowing of engines and vehicles, irregularities of rail cross-levels, and above all by uneven wagon loading.

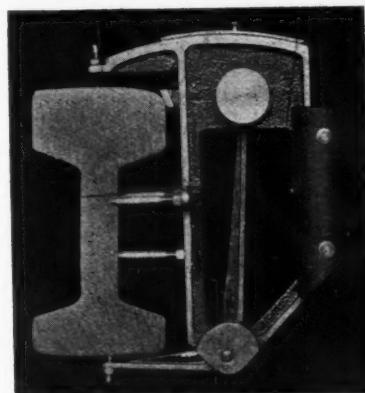
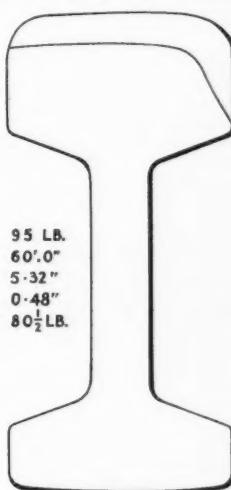
Absolute accuracy in the method of gauging is a chimera as the standard of accuracy is more or less a mathematical fiction. In practice what is done is to set a limit based more or less on general experience. As for rails of similar form

the unit weight (in Great Britain lb. per yd.) may be taken as a measure of resistance to transverse bending, it might, for instance, be laid down that a rail which has lost 20 per cent. of its weight is due for renewal. With no less justification it could have been fixed at, say, 19 or 21 per cent. Thus, although on the one hand exact correspondence between estimate and actuality is unattainable, on the other the method

office or any handy shelter; both this and the field work take less than a minute to perform.

The depth of side-wear is gauged by a horizontally sliding piece advanced by a graduated cam until it touches the rail. The cam reading indicates the scale on which the weight is read and the position of one of the stencils mentioned below. The lid of the instrument box acts as drawing board and carries a pad of papers below a graduated set-square. Two stencils with vernier readers are positioned over the paper

SECTION	95 LB.
LENGTH	60' 0"
DEPTH	5·32"
SIDE WEAR	0·48"
NET WEIGHT	80 $\frac{1}{2}$ LB.



Left : Section of fully-worn rail (reduced from full-size original), and (right) gauge in use

must give accurate and constant comparison between rail and rail so that two or more operators working independently will arrive at the same results and so promote a uniform renewal policy, however extensive the railway system may be.

The apparatus of which a diagram is reproduced herewith, is believed to fulfil these requirements and it has also other advantages. It requires no attachment to the rail; and the weight of the rail, whether top-worn only or combined with side-wear, is read directly on a single scale. It also supplies the data from which a cross-section of the worn rail is reproduced subsequently in the

by means of the set-square and gauge readings. The outline obtained by passing a pencil round the stencils then corresponds to the cross-section of the worn rail.

The panels of scales are detachable and interchangeable so that rails of different patterns can be dealt with. The instrument shown is designed for bull-head rails and for use with both them and flat-bottom rails would require to be somewhat enlarged. The prototype has been made by the writer, and the device is not yet in production, but enquiries may be addressed to Sinclair Model Engineering Company, 45, Midwharf Street, Glasgow, C.4.

WESTERN REGION WOMEN'S FIRST-AID COMPETITION.—The result of British Railways, Western Region, Women's First-Aid Competition, which was held at Old Oak Common Hostel, London, on March 11, was as follows: Florence M. Lean Cup and prizes, Newton Abbot, 303½; Mabel A. Potter Cup and prizes, Paddington, 301; Prizes, Swindon, 272½; Bristol, 260½; Swansea, 250½; Cardiff, 239. Dr. E. J. Selby was the adjudicator in the team test, and Dr. C. T. Newnham in the individual tests. The subsequent proceedings were presided over by Mr. R. Burgoynes, Regional

Staff Officer, and the presentation of trophies and prizes was made by Mrs. Burgoynes. The Chairman was supported by the adjudicators, also Mr. E. C. Cookson, Assistant Civil Engineer; Mr. C. H. T. Morgan, Assistant Engineer (General); Mr. C. W. Powell, Assistant Operating Superintendent; Mr. K. C. Griffiths, Staff Assistant to Operating Superintendent; Mr. N. H. Bryant, District Operating Superintendent; Mr. E. C. Bourne, District Motive Power Superintendent; Mr. W. H. Bodman, Staff Assistant to Mechanical & Electrical and Carriage

& Wagon Engineers; and Mr. W. W. Wood, Chief of Police (South Wales Area). The Newton Abbot team will represent the Western Region in the British Railways & London Transport (Railways) Competition for Women, which is being arranged by the St. John Ambulance Association at Central Hall, Westminster, on May 16. Miss C. A. D. Lees, Welfare Supervisor for Women, proposed a vote of thanks to the adjudicators and Miss J. Heywood, captain of the winning team, proposed a vote of thanks to the Chairman and Mrs. Burgoynes and handed a bouquet to Mrs. Burgoynes.

Flame-Hardening of Locomotive Tyres

Oxygen—town gas as a heating medium for reducing flange wear

FOR many years experiments have been carried out with a view to reducing the wear on locomotive tyres, and any means by which this can be accomplished is worthy of consideration, particularly in view of the need to conserve steel. When excessive wear takes place in the root of the flange due to operation over sections of line having acute curves, several years of useful tyre life are lost during re-turning to bring the tyre back to standard profile.

As a result of experimenting on the problem of reducing flange wear, the Peddinghaus organisation is now manufacturing a semi-automatic plant for flame-hardening locomotive wheel

flanges, a feature of which is the use of oxygen—town gas as the heating medium. A comparison between tyre wear on normal and flame-hardened tyres is shown in the accompanying diagrams.

Design and Operating Features

The plant is semi-automatic in operation. An automatic temperature indicator known as the Peddinghaus Milliscope is designed for dealing with a rise in temperature of over 400°C . per sec., and it is claimed that this instrument is very accurate and ensures consistent results. The equipment is intended to deal with all types of

wheels irrespective of design or size. The rate of hardening is between 12 in. and 16 in. per min., and for a wheel of approximately 3 ft. 6 in. dia., town gas consumption is stated to be 210 cu. ft. and of oxygen 126 cu. ft.; town gas is fed at a pressure of 4.2 lb. per sq. in. The hardening is progressive and the water quench is placed just behind the specially designed burners. The machine may also be used for softening the flange by bringing the cooling quench into operation further away from the burners.

Counterweights are clamped to the wheels during the process so that the correct wheel balance is secured, thus

SOFT FLANGE

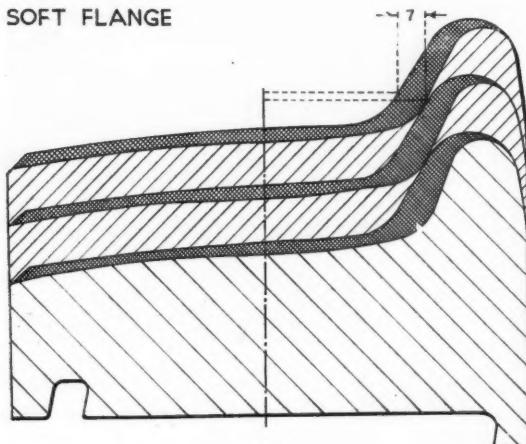


FIG. 1.
RAPID WEAR ON LINE HAVING
GREAT NUMBER OF CURVES

HARD FLANGE

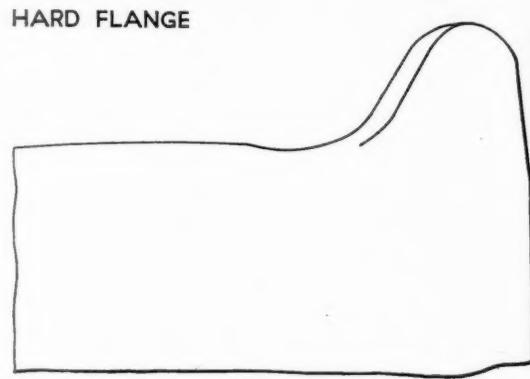


FIG. 3.

FLAME - HARDENED FLANGE
 $V = 300\text{MM./MIN. } H_{RC} 61 \pm 2$

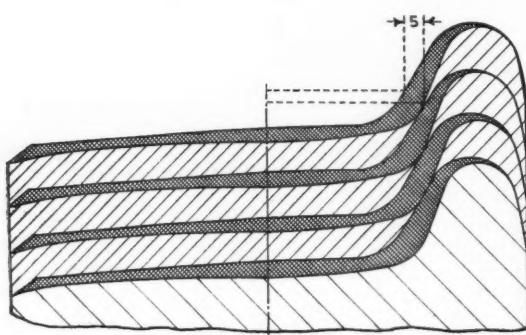


FIG. 2.
NORMAL WEAR

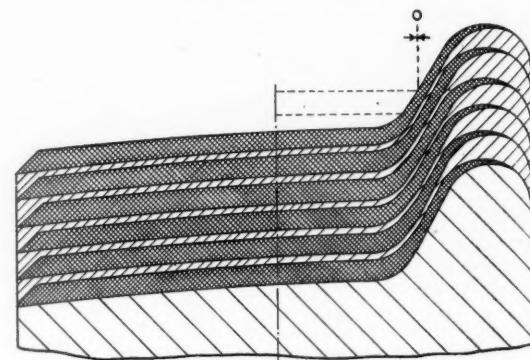


FIG. 4.

LITTLE WEAR
BETTER USE OF MATERIAL



WEAR



CUT AWAY MATERIAL
(FOR OBTAINING ORIGINAL PROFILE)



SCRAP

Diagrams showing flange wear on flame-hardened and untreated locomotive tyres

enabling the wheels to rotate at a constant speed past the burners. These weights, which in fact compensate for the absence of the connecting rods, have a simple and rapid-action clamp, enabling them to be attached and removed in a minimum time.

The method of operation is particularly simple. The whole plant takes up comparatively small floor-space and is driven by a 1½ h.p. motor. The axle, together with the two wheels, rests on four rolls in such a way as to prevent any lateral movement.

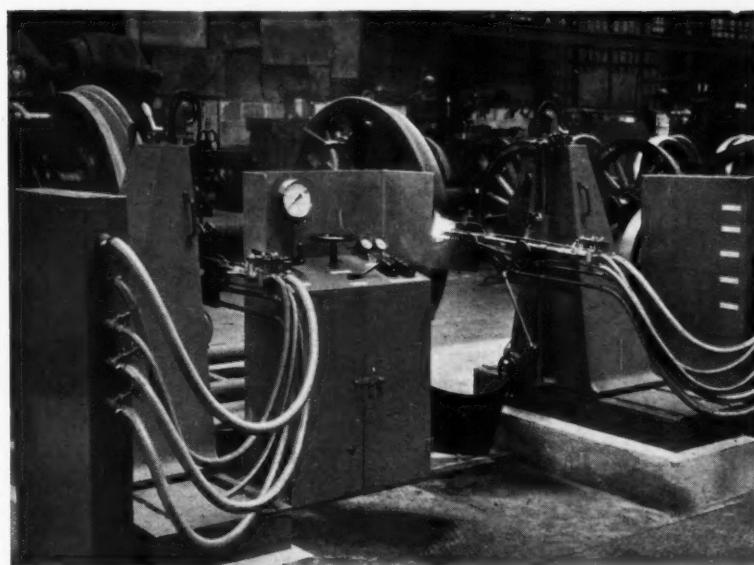
Two of these rolls are connected to a shaft fitted with a chain sprocket and are driven through a gearbox having an infinitely variable speed between two limits. The distance between the sets of rolls may be readily varied to accommodate wheels of from about 30 in. to 90 in. dia. The driven rolls thus rotate the wheels past the burners, and quench at a constant speed, regulated to obtain the correct temperature to produce the depth of hardening required.

Temperature Control

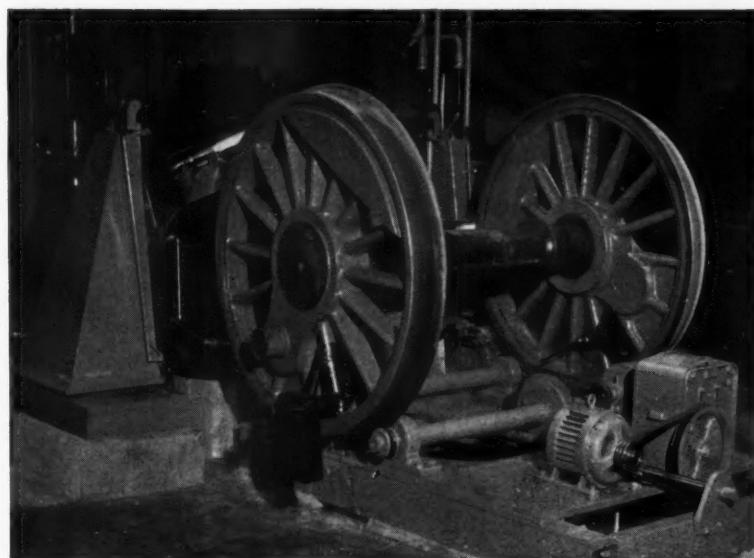
This pre-determined temperature is accurately "watched" by the Milliscope, which is virtually a pyrometer functioning so rapidly that for all practical purposes there is a complete absence of time lag. If the wheels rotate too slowly, thereby causing the flange to get too heated, the speed is slightly increased to ensure that the correct temperature is maintained; should the temperature be below that required, then the speed is reduced so as to increase the heat input to the flange and so maintain the correct temperature. The illustrations show the machine hardening two flanges simultaneously.

It is claimed that the life of a tyre of one type of locomotive was approximately 107,000 miles with an unhardened flange; this was increased to 214,200 miles when the flange was flame-hardened.

It is further claimed, as a result of experiments already carried out, that flame-hardened tyres assume a smooth surface and do not wear the track to the same extent as do normal tyres. The plant is distributed in the British Isles and British Dominions by Surfard Limited.



Operating side of the plant showing the controls



Wheel-rotating mechanism with the counterbalance weight in position

INSTITUTE OF TRANSPORT, NORTHERN IRELAND SECTION.—At the monthly meeting of the Northern Ireland Section of the Institute of Transport, held at the U.T.A. headquarters, 21, Linenhall Street, Belfast, on March 18, Colonel S. G. Haughton, Chairman of the Northern Ireland Shipowners' Association, spoke on "American Travel." Colonel Haughton, a prominent industrialist in Northern Ireland, and a member of the Northern Ireland Road Transport Board from 1935 to 1945, said that as the United States railways carried more than three-fifths of the inter-city commercial freight and more than half of the passenger traffic of the country, an early solution of their problems was imperative in the interests of the country's peacetime economy. At their own expense the U.S. railways had assumed responsibility for

providing sufficient equipment for any probable commercial demand, plus the load resulting from the defence programme. In the absence of the Chairman of the Section (Mr. J. W. Hutton), the Vice-Chairman, Mr. J. Courtney, presided.

REVISED BRITISH STANDARD FOR ELECTRIC DISCHARGE LAMPS.—The British Standards Institution has published recently a revision of the 1946 edition of B.S. 1270, "Schedule for Electric Discharge Lamps for General Purposes." This has been prepared to take account of the great increase in the number of sizes and types of fluorescent lamps now available. In view of the variety of colours in which tubular fluorescent lamps of Class MCF/U are available, and in an effort to keep the size of the schedule within reasonable

limits, a system of coding has been adopted. Copies of this standard may be obtained from the British Standards Institution, Sales Branch, 24, Victoria Street, London, S.W.1., Price 2s. post free.

UNITED RAILWAYS OF HAVANA.—Nationalisation of the British-owned United Railways of Havana was discussed at a meeting in Havana on March 15 between the new Prime Minister, and the executive board of the National Sugar Mill Owners' Association. The mill owners agreed to give further consideration to possible purchase of the railways. The former President, whose Government was overthrown on March 10, announced at the end of last year that the Cuban Congress would be asked for a sugar tax to finance proposed nationalisation of the railways.

An 80-ton Machinery Wagon, C.I.E.

Drawgear mounted on the bogies to save weight and allow sharp curves to be traversed

TO handle the increasing traffic in heavy machinery and plant and particularly transformers for use in connection with electrification and drainage schemes in the Republic of Ireland, a heavy low-loading machinery wagon was required. The maximum load for any single item was found to be 80 tons and a vehicle was designed to carry this load. The wagon, built at the Inchicore Works of Coras Iompair Eireann, is now in service.

A departure from previous practice has been the mounting of the buffering and drawgear on the bogies and stopping the main frame just beyond the bogie centres. In addition to saving weight, this arrangement enables the wagon to negotiate curves of small radii, such as those in goods yards and sidings, and obviates likelihood of buffer-locking.

The large diameter, 5 ft. 6 in., bogie centres are fitted with flat bronze bear-

ing plates above which the frame centres move. These bogie centres have been made sufficiently robust to withstand the maximum buffering and traction loads to which they may be subjected. The bogie frames are of 1-in. plate to which the bogie centres and intermediate stays are riveted. The drag box and end stays are fabricated and welded in position on the frames. The disc wheels, cast-iron axleboxes, and horns are of standard design.

The 21-ft. well of the main frame consists of four rolled steel sections 24 in. x 7½ in. with 1-in. plates top and bottom. These are reduced to 14 in. x 8 in. with ½-in. plates top and bottom over the bogies. The same sections are used in the cross-members.

For convenience in manufacture the frame was divided into three sections, the well bottom and the two ends, each comprising four beams and cross-members. These sections were fabri-

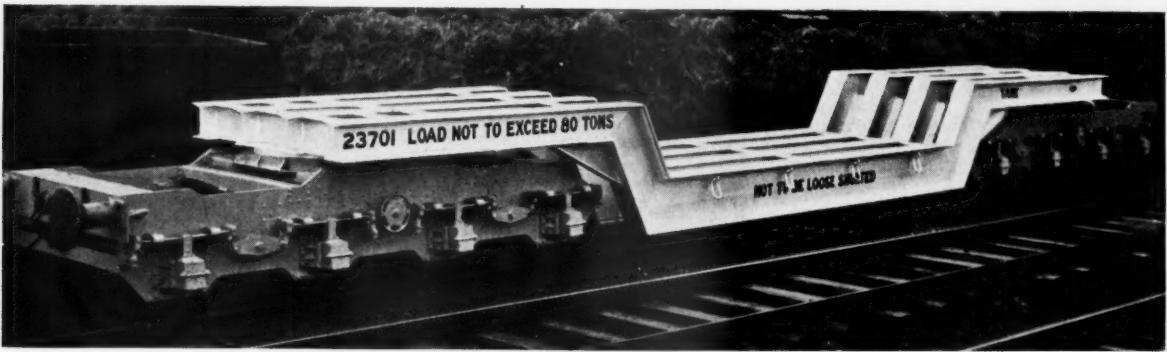
cated and then the three sections were welded together; as a result of the methods used there was neither warping nor distortion.

The bearing springs of each pair of wheels and axles are connected by compensating beams to distribute road shocks over both springs, so preventing momentarily excessive loads from coming on to any one axlebox or spring gear.

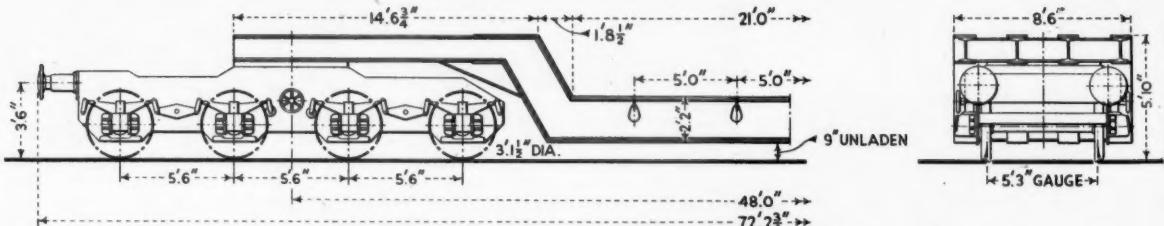
The clasp brakes, which are on the two centre axles of each bogie, can be applied from either side, and the brake gear is easily accessible.

The main dimensions of the wagon are:—

Length over buffers ...	... ...	72 ft. 2½ in.
Length of well ...	... ...	21 ft.
Width of main frame	... ...	8 ft. 6 in.
Height of floor above rail level	... ...	11 in.
Distance between bogie centres	... ...	48 ft.
Dia. of bogie centres	... ...	5 ft. 6 in.
Centres of wheels ...	... ...	5 ft. 6 in.
Tare weight ...	... ...	43 tons 17 cwt.
Carrying capacity	... ...	80 tons



Wagon built by Coras Iompair Eireann for carrying heavy machinery



Half-section of wagon, showing principal dimensions

HYMATIC ENGINEERING EXHIBITS AT THE B.I.F.—A full range of pneumatic equipment will be exhibited by the Hymatic Engineering Co. Ltd., of Redditch, on its stand (D138) at the British Industries Fair, Castle Bromwich. Exhibits will include a new compressor unit, the 100 SAS, designed for fitting to machine tools, motor vehicles, and so on. This displaces 7·5 cu. ft. of air per min. at pressures of 80-100 p.s.i., and absorbs only 1·34 h.p. at 2,000 r.p.m. when delivering its full capacity. The main exhibit will consist of stationary and mobile

compressor sets for general purposes. The stationary range, covering displacements from 5 to 22 c.f.m., will be represented by the electrically-driven "G" and IS.10X models. The mobile sets will include two smaller all-purpose units, the HPS2/TR and HMS 7PR, designed for factory maintenance duties. Other exhibits will include the Hymatic DP6 electrically-driven diaphragm-type compressor; pressure feed containers; and spray guns to work with the latter. All mobile compressor sets and the pressure feed containers will be fitted

with Hymatic air rectifier type R50. Four examples will be on view of Hymatic air hammers, also blow guns, spray lances, nozzles, and other accessories.

REPAIR WORK AT GOYROCK PIER.—The Scottish Region has announced that Gourock Pier is about to undergo a general overhaul. Repairs to the main structure will take about a year to complete. The work is to be done in stages and will not interfere with the berthing of the railway steamers.

Recent Bridging Practice in Rhodesia

*Unusual superstructure design
in Odzi and Hunyani bridges*



Launching the continuous-span Odzi Bridge superstructure on falsework and cantilever brackets on the piers. Old lattice spans on the left

THE Rhodesia Railways recently decided to reconstruct the Odzi Bridge on the Salisbury-Umtali line. To meet the peculiar conditions an interesting design and plans for the erection of the superstructure were prepared by Messrs. Freeman, Fox & Partners, Consulting Engineers, London.

The original bridge consisted of three 91-ft. lattice and one 75-ft. 6-in. plate-girder spans, all of the deck type, supported by box abutments and three river piers about 30 ft. high. The new superstructure had to be erected on the existing abutments and piers without any staging between the piers, and rail level over the bridge had to be raised

by 3 ft. Moreover, erection had to be carried out without regular occupation of the track for crane and other work.

The new bridge had to be designed for B.S.S. 20-unit loading, and in accordance with the Government of India impact formula. The piers were founded on rock, whereas the abutments were not and might therefore be liable to slight sinkage. Moreover, in 1925 an extreme flood overtopped the bottom booms of the old bridge by 3 in. It was therefore decided that the total depth of the new structure should be reduced to the minimum consistent with economy.

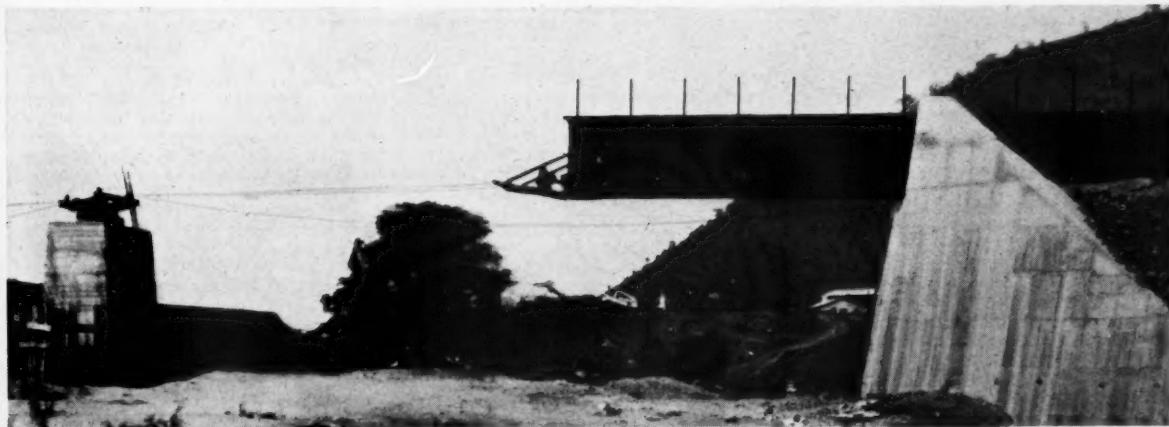
Careful consideration was given to

these conditions in the planning of the new superstructure and in the development of the method of erection, which had been suggested by the Chief Engineer's Department of the railway. The design embodied riveted plate-girder deck spans with a uniform depth of 7 ft. The two middle spans are continuous and extend a short distance beyond the outer piers as cantilever arms. The two end spans are linked with the cantilever arms by single-roller expansion bearings, to allow flexibility should the abutments sink.

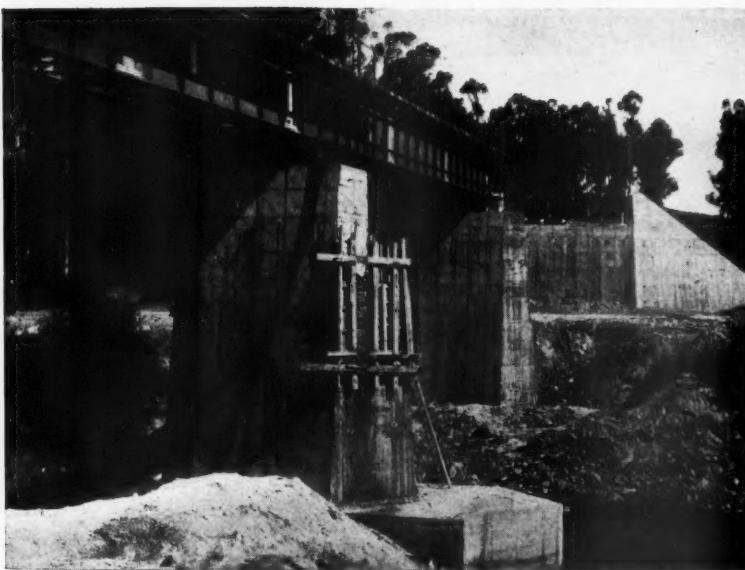
The Umtali-side pier, the shortest, has fixed bearings for stabilising the continuous portion of the bridge, and expansion bearings are provided at the other piers. The end spans have fixed bearings at the abutments. The tops of the piers were raised 4 ft. in the form of steel grillages, subsequently encased in concrete. The reduction in structure-depth was achieved mainly by the adoption of continuous girders, and this, with the raising of the rail level, resulted in an additional 5 ft. 6 in. of clearance for flood water being provided.

Erection Programme

A comprehensive erection memorandum was prepared by the consulting engineers. The new superstructure was to be erected 13 ft. 6 in. upstream of and parallel to the old bridge after the latter and its approaches had been raised 3 ft. On this erection alignment falsework was to be built about 50 ft. into the river from one abutment, and outrigger platforms were to be built out up- and down-stream from the pier tops. Thirty-ft. sections of the bridge girders were placed by crane on rollers mounted on the staging, and successively joined up by riveting. For launching, the end spans were temporarily connected rigidly with the cantilevers by



First stages of launching new Hunyani Bridge. Note the launching nose and the roller-cradle on the piers ready to receive it and pass on the continuous superstructure



View of the superstructure in position, showing the double-track abutment and provision for future widening of piers, Hunyani Bridge

means of bolted plates. As each section was added to the tail of its predecessors, the structure was launched forward and with the aid of a short launching nose passed over rollers on the pier-top outriggers. A cable and winch on the far bank were used for haulage, and an 11-ton kentledge was required to prevent over-balancing at one stage of the launching.

When the whole had been launched, the rollers were replaced by permanent bearings and the track was laid. Both old and new superstructures were then jacked on to ball traversing carriages, eight carriages over each of the three piers, two under each old and new

girder, and four carriages over each abutment. Each carriage had eight 2½-in. dia. balls, four more being added for circulation during traversing. In this way both bridges were traversed simultaneously downstream in one operation to bring the new spans on to the bridge centre line.

To ensure that the reactions at the piers were correct, 50-ton hydraulic capsule gauges were used for checking. These precision instruments were made by A. Macklow-Smith Limited, of Putney. The steelwork contractors were the Cleveland Bridge & Engineering Co. Ltd., of Darlington.

More recently, a new bridge had to

ROAD CASUALTIES IN JANUARY.—Road casualties in Great Britain during January totalled 14,195, as compared with 13,517 in the corresponding month last year. Deaths numbered 377, an increase of 13. Despite the continued upward trend, the figures were considerably below those for January, 1938, when 15,745 casualties, including 514 killed, were reported.

BRITISH RAILWAYS AND THE BUILDING INDUSTRY.—At its March meeting, the Area Chairmen's Conference of the London Master Builders' Association, which met under the chairmanship of the President, Mr. D. E. Woodbine Parish, received representatives of the London Commercial Service of British Railways to discuss ways and means by which the railways could more effectively help the building industry. Mr. W. H. Vine, head of the London Commercial Service, British Railways, said that he wanted to secure close co-operation with trade associations like the L.M.B.A. in order to discuss difficulties in their initial stages and ensure that the railways gave the best possible service to industry. In thanking Mr. Vine for coming to meet the conference, the Chairman said they welcomed the opportunity of meeting representatives of British Railways to discuss the

difficulties which inevitably must arise in the transport of large quantities of goods and equipment throughout the country, and would gladly co-operate with British Railways in facilitating improvements. Though the building industry was depending more and more for its supplies on road transport, a large volume of them must still come by rail. If, by discussion, they could overcome hold-ups on the line, they would between them be increasing the efficiency of British industry.

MATERIALS HANDLING EQUIPMENT AT CASTLE BROMWICH.—On an open-air stand at the Castle Bromwich section of the British Industries Fair, I.T.D. Limited (Industrial Truck Development), in association with Austin Crompton Parkinson Electric Vehicles Limited, will exhibit selections from a range of fork lift trucks and materials handling equipment. One category of equipment has load capacities from 1,000 to 5,000 lb. and lifting heights from 6 ft. to 14 ft., and is mounted on chassis powered with diesel, petrol or battery electric units. All these trucks can be supplied with a variety of auxiliary equipment for special purposes, examples of which will be shown on the stand. The second category of trucks consists of industrial

be built over the Hunyani River to carry the Salisbury-Bulawayo single-track main line. This bridge is on a 13½-mile deviation, necessitated by the construction of the Hunyani Dam and the submergence of 3½ miles of the original line and bridge over that river.

Because of the urgency of the work and difficulties in obtaining supplies, and as this bridge had to be about the same length as the Odzi Bridge for which the steelwork contractors had detail drawings and templates available, a repeat order for the Odzi superstructure was placed with the firm. Though the length of one end span differs slightly in the two bridges, the same arrangement of continuous girders and cantilever extensions applies to both. In the Hunyani Bridge, however, the central pier has been designed to resist longitudinal thrust, and the fixed bearings are therefore located there.

The new bridge is within 25 miles of Salisbury, the centre of a rapidly-expanding industrialisation and it was therefore considered advisable to provide additional width in the approaches and in the pier foundations up to low-water level to allow for possible doubling in the near future. Good rock foundations were obtained for all the piers about 10 ft. below bed level.

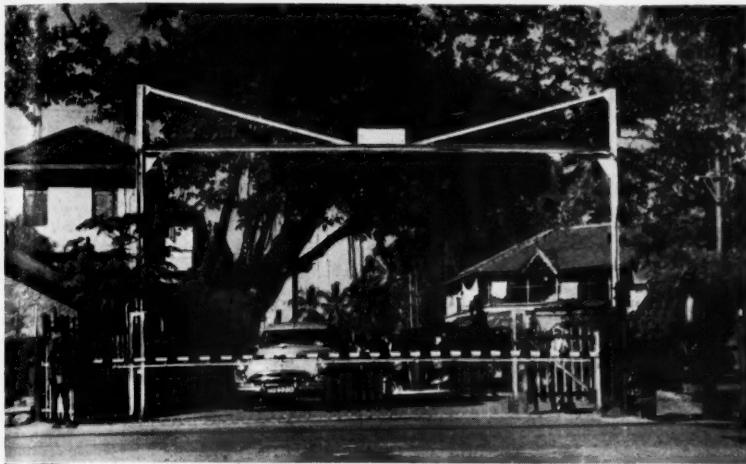
As at the Odzi Bridge, the 190-ton superstructure was erected and launched longitudinally—though in this case on the bridge centre line—by the Bridge Section of the railway, under the direction of the Bridge Engineer. He was also responsible for the design of the substructure of this bridge. To provide horizontal surface for working and erection, the approach embankment was at first constructed only up to girder bed-level. The capsules were again used to check the accuracy of the erection and no adjustments were found necessary.

platform units for loads between 2,000 and 4,000 lb., and provided with either fixed or lifting platforms. New equipment to be shown for the first time includes a Stacatrac diesel-engined fork lift model fitted with flash-proofing equipment. The model "2PH" Stacatrac is now equipped with an Austin 4-cylinder engine as a direct result of the company's association with the Austin Motor Company through Austin Crompton Parkinson Electric Vehicles Limited. Users of battery-driven trucks will see demonstrations of a battery-changing device which enables discharged batteries to be replaced by fully-charged batteries in a few seconds. This method can be employed with the Stacatrac range of battery electric fork trucks in conjunction with a special battery changing trolley.

RAILWAY BENEVOLENT INSTITUTION GRANTS.—At a meeting on March 19, the board of the Railway Benevolent Institution granted annuities to eight widows and seven members, involving an additional liability of £282 6s. a year. The board also granted 31 gratuities amounting to £370, to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of February amounted to £519 9s. 6d.

Power-Operated Crossing Gates in India

Experimental installation on Bombay suburban line of the Western Railway



Power-operated barrier closed against road traffic

IN Europe, North America, Australia, and New Zealand, the lifting barrier gate is extensively used. The gates are worked by electric motor or mechanically by winch from the signal-box. Where the gates are power-operated, advance warning that they are about to be closed, or lowered, is given by flashing red lights directed towards road traffic, accompanied by loud-ring electric bells.

In Canada and the United States many barriers are worked automatically by the trains themselves through track circuits. The interval of about 15 to 20 sec. allowed before the barriers descend, is occupied by the flashing of the red lights and the bell ringing. Many level crossings in these countries have no barrier gates, and the public is warned of a train approaching by flashing red lights and some kind of audible indication. At these crossings it is safe to do away with gates as the public has a highly developed road sense. The few accidents which occur are nearly always the road user's fault and are generally the result of a motorist racing the train.

Some railways in India have already adopted lifting barrier gates operated from the signalbox. The Western Railway (formerly B.B.C.I.R.) has only one such installation at present. The gate booms are worked from the box by a special winch interlocked with the signals. The winch rotates a wire drum through gearing, and two wires are led to the operating wheel at the fulcrum of the gate boom. A bent crank arrangement drives rodding to the gate split stretcher lock, which is situated between the up and down lines. The locking plunger, which operates in the split stretcher, is worked by ordinary rodding from the gate lock lever in the cabin. A mechanical warning bell rung

by the gate mechanism warns road traffic when the booms are descending. Further installations of this type are in hand.

Experimental power-operated, lifting barrier gates have recently been installed at level crossing No. 20 at the south end of Santa Cruz Station, Bombay. This crossing is on the Bombay suburban section of the Western Railway and is one of the busiest on the system mainly because it leads to the main air port of Bombay. Formerly, the gates, which were double and of heavy wooden construction, were opened and closed manually by gatemen and were electrically interlocked with the signalbox. In an eight-hour shift, many operations

had to be performed, which meant that the gatemen's movements, because of fatigue, became slower toward the end of their shift. Electrically-operated lifting barrier gates were an obvious solution to this problem, and it was decided to install them as an experiment, principally to observe reactions of road users and to make improvements or additional precautionary measures that might arise with experience.

Use of Point Machines

A special electric motor with gearing operating at the pivot point of the boom is available for working such barriers, but unfortunately it is an imported article and not at present manufactured in India. As it would have taken considerable time to obtain this equipment and it was necessary to start the experiment immediately, temporary arrangements had to be made by using two all-electric point machines. These machines are fixed at track level and operate the counterweighted booms by cranks. The point machines operate on 110-V. a.c. and take a current of about 10 amp. while in operation.

A three-slide instrument is installed in the gate hut; each gate boom is controlled by a separate slide. The centre slide is the interlock to the signalbox and is in the pulled position to release the gate interlock lever there. When the level crossing can be opened, the signalman places his gate interlock lever normal. This rings a bell at the level crossing and enables the centre interlock slide to be pushed back normal. This releases the slides controlling the gate booms which can then be pulled to



Electric point machine, connection and three-slide control instrument

raise the booms. A bell signal is also used as a warning to close the crossing; on receiving it the gateman in charge replaces the gate slides to the centre or back-lock position. They are checked in this position by an electric lock, at the same time closing a circuit to a time-element relay and highway warning circuits which causes to operate flashing red lights and warning bells on the highway near the barriers.

The time element relay is set for 15 sec.; at the end of this period the electric locks are released, enabling the slides to be replaced fully normal,

thereby lowering the gate booms. The timing circuit is essential to prevent the gatemen accidentally lowering the booms without giving adequate warning. The level crossing can be opened and closed in an interval of about 8 sec., which is much faster than the old manual method.

Electrical contacts are fitted to the gate booms to detect their position so that a release cannot be sent to the signalbox unless they are correctly lowered and locked. Contacts on the gate booms also control red and white lights for use at night.

These gates have been in operation for about two months and so far no untoward incident has been noticed except for a lorry colliding with one of the booms because of lack of proper control, a type of accident which frequently occurred with the old wooden gates.

Lantern slides depicting the installation are exhibited in the cinemas in Bombay as an advertising and instructive medium. The apparatus was manufactured and installed by the Signal & Telecommunication Department of the Western Railway.

Stabilised Supply for Colour-Light Signals

Counter-e.m.f. cell compensates for voltage changes



Complete assembly and components of counter-e.m.f. cell for stabilisation of colour-light signalling supplies

ONE of the problems in the operation of railway colour-light signalling has been that of compensating for varying voltage in a storage battery and rectifier power supply. To overcome this difficulty, Nife Batteries, of Redditch, Worcester, has introduced, after much research, a new Nife counter-e.m.f. cell developed specially for signalling systems of this type. It has been designed to work in conjunction with Nife Telesels.

The voltage at which a battery "floats"—that is, the condition when the load on the battery is exactly balanced by the output of the rectifier—is higher than the voltage at which the battery begins to discharge. The battery voltage will tend to increase to a maximum if the output from the rectifier exceeds the load on the battery. If the mains supply should then fail, there is a sudden drop in voltage which adversely affects the illumination of the signal.

In an endeavour, therefore, to avoid an excessively high voltage, with the considerable resultant difference between "floating" and "discharge" voltages, it is usual to employ a battery

of large capacity and to arrange for the rectifier to maintain it between 60 per cent. and 70 per cent. charged.

The standard Nife railway signalling Telesel was designed to withstand overcharging for considerable periods without increasing maintenance. On a 12-volt colour-light signal installation, therefore, it is possible to use a 10-cell battery unit operating at 15-15·5 volts. At this voltage the battery remains fully charged, and will automatically regain its fully charged condition after a "power-off" period. The 10-cell battery will begin to discharge at 13 volts, falling finally to 11·5 volts after a period depending upon its capacity.

The new Nife counter-e.m.f. cell is a means of compensating for varying voltage. Generally similar in size and appearance to the "JK1" Telesel, it is capable of carrying a maximum current of 4 amp. It has no capacity, and a current passing through the cell causes a voltage of 1·9 to 2·3 volts to be developed across it. Having no capacity it will deliver no current, and therefore can be short-circuited by means of a relay.

The counter-e.m.f. cell, with a

"power-off" relay connected across its terminals, is included in the circuit between the colour-light signals and the 10-cell Nife Telesel battery floating at 15 or 15·5 volts. The relay will have to carry only the maximum load imposed by the signal as the new cell contributes nothing.

When first installed, or immediately after a "power-off" period, the counter-e.m.f. cell will produce a voltage of 1·9—this is not due to the cell, as such, but is the voltage dropped across it by the current flowing through. The 15·5 volts of the battery is thus reduced to 13·6, and, allowing for 0·5 volts drop in the cables, the voltage at the lamps will be in the region of 13·1 volts.

During the first 24 hours of use, the voltage drop across the cell will rise to 2·0. It will stabilise in 100 hr. or thereabouts at 2·2 volts, assuming that a 12-volt, 12-watt lamp is being operated constantly with periods of double this load at intervals (double-yellow aspect). The voltage at the lamps is thus 12·8 volts—allowing 2·2 volts in the counter-e.m.f. cell and 0·5 volts drop in the cables. When the double-yellow aspect is exhibited, the voltage across the cell will increase by 0·1 V. and thus the voltage at the lamps will be 12·7.

Should a mains power failure occur with the new system, the "power-off" relay will short-circuit the counter-e.m.f. cell. The battery voltage will drop almost immediately to 13 volts and, allowing for cable voltage drop, 12·5 volts will then be applied to the lamps. This will tend towards 11·5 volts as the battery discharges. The maximum variation in voltage, therefore, can never be more than 1·6 volts, as against 4 volts under the old method.

The use of a resistance instead of a counter-e.m.f. cell was at one time considered, but quite apart from possible failures here, the voltage drop across it is a function of the current and the double-yellow aspect would produce twice the voltage drop of the other single aspects. The increase in voltage drop across the Nife counter-e.m.f. cell due to the double-yellow is only 0·1 volts, which is insufficient to cause any visible variation in the light intensity.

RAILWAY NEWS SECTION

PERSONAL

The Railway Executive announces the appointment of Mr. A. Forbes Smith, Stores Superintendent, Eastern and North Eastern Regions, Kings Cross, as Chief Officer (Stores), Railway Executive headquarters, London.

Mr. B. K. De, Commercial Traffic Manager, Bengal Nagpur Railway, India, has retired, and has been succeeded in that position by Mr. S. A. Yussof, Deputy Transportation Manager.

Mr. J. F. H. Tyler, Assistant to the Signal & Telegraph Engineer, Western Region, has been appointed Assistant Signal & Telecommunications Engineer.

Those recently elected as Members of the Institution of Mechanical Engineers include Mr. D. C. Brown, Deputy Chief Mechanical Engineer, Crown Agents for the Colonies.

At the annual general meeting of the Mansion House Association on Transport on March 28, Sir Alfred Faulkner was unanimously elected as President of the Association, in the place of the late Mr. W. H. Gaunt.

Mr. Robert Marshall has been appointed a part-time Member of the Iron & Steel Corporation of Great Britain. Mr. Marshall is a Director of Colvilles Limited, and has been on loan to the Corporation since May, 1951.

The Minister of Transport has appointed Mr. C. S. Mundy, who is a representative of shipping, to be a member of the Transport Users Consultative Committee for the London Area, in place of Mr. A. I. Anderson, who has been appointed to the Central Transport Consultative Committee.

Mr. D. B. Watson, who has been General Agent, Liverpool, for the Canadian Pacific Railway since 1946, has been appointed European Freight Manager for the company and will move to London. Mr. Watson will be succeeded at Liverpool by Mr. G. W. Murrell, General Agent in Bristol. Mr. P. Spilsbury, hitherto Passenger & Freight Agent in Bristol, has been appointed General Agent and will be succeeded by Mr. W. E. Jury of the European Passenger Manager's office in London.

SCOTTISH REGION APPOINTMENTS

The Scottish Region of British Railways has announced the following appointments:

Mr. M. G. Maycock, Assistant Engineer (Permanent Way), Eastern Region, London (Kings Cross), to be Assistant Civil Engineer, Scottish Region.

Mr. G. Guthrie, Assistant Outdoor Superintendent to the Carriage & Wagon Engineer, Cowlays, to be Carriage & Wagon Works Manager, St. Rollox.

Mr. J. Sinclair, Assistant Works Superintendent, Horwich, London Midland Region, to be Acting Locomotive Works Manager, Cowlays.

Mr. W. Jackson, Assistant District Operating Superintendent, Burntisland, to be Assistant District Operating Superintendent, Glasgow.

Mr. J. R. Legg, Assistant to District Operating Superintendent, Darlington, North Eastern Region, to be Assistant District Traffic Superintendent, Aberdeen.

Mr. J. J. Willan, Staff Assistant to the Commercial Superintendent, North Eastern Region, is retiring on April 5.

Mr. J. H. Verstegen, who, as recorded in our February 1 issue, has retired as Chief of the Signal Department, Netherlands Railways, joined the railway service at Rotterdam in 1912. He was promoted engineer in 1917 and engineer, second class, in 1919. Under the direction of Mr. C. G. J. W. Koopman, he became acquainted with the principles of the signal system. Later Mr. Verstegen went

Mr. John Black has been appointed an additional Director of Sentinel (Shrewsbury) Limited.

Messrs. E. L. O'Flanagan, S. W. Parrott and F. W. Powell have been appointed Directors of the board of Hale & Hale (Tipton) Limited.

Mr. Thomas Eaglesfield, District Motive Power Superintendent, Sheffield, Eastern Region, has been appointed District Motive Power Superintendent, York, North Eastern Region.



Mr. J. H. Verstegen

Chief of the Signal Department, Netherlands Railways, who has retired

to Utrecht to assist in building-up a new signal system for the Netherlands Railways, after amalgamation of the two former companies. Mr. Verstegen was particularly concerned with the automatic block system, and planned the arrangements for the automatic signalling when first introduced on the Gouda-Oudewater section in 1926, and, later, with light signals on the Voorschoten-The Hague section. He was appointed engineer, first class, in 1922, divisional chief, first class, in 1933, and was promoted a chief engineer in 1938. On January 1, 1941, he became Chief Engineer of the Signal Department for Utrecht District and he succeeded Mr. van Alderen as Chief of the Signal Department, Netherlands Railways, in 1946.

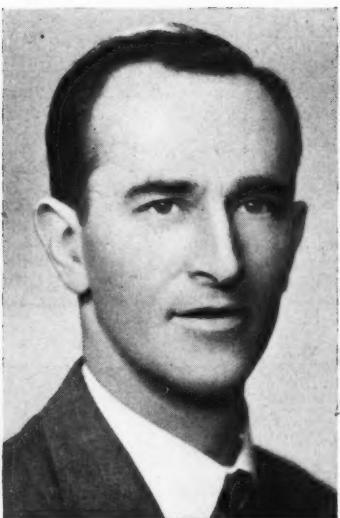
Under his direction much of the signal system was promptly restored and a large measure of modernisation carried out. After the Liberation, signalling became an independent Department. The Netherlands Government recognised his services with the decoration of Knight of the Order of the Netherlands Lion. Mr. Verstegen will continue his close contact with railway signalling in his capacity as a Director of N.V. Nederlandse Machinefabriek Alkmaar and of N.V. Spoorweg Sein Industrie. He is a Member of the Institution of Railway Signal Engineers.

COLONIAL STANDARDS CONFERENCE

The conference on the standardisation of Colonial railway equipment, referred to in our March 21 issue, which opened at the Colonial Office on March 31, is being held under the auspices of the Colonial Office and the Crown Agents for the Colonies, and was opened by Mr. E. Melville, an Assistant Under-Secretary of State, Colonial Office. It is continuing under the Chairmanship of Mr. R. W. Foxlee, Engineer-in-Chief, Crown Agents. Representatives present include the following Chief Mechanical Engineers:

Messrs. G. Gibson, East Africa; T. B. Welch, Nigeria; L. C. Gardner, Gold Coast; C. G. Harrison, Federation of Malaya; J. Best, Sierra Leone; L. C. Grubb, South Africa; N. W. Porteous, Sudan. Mr. A. B. Henderson, Consulting Engineer, is representing Nyasaland Railways and Mr. P. S. Palmer, of Messrs. Freeman, Fox & Partners, is acting as an observer for the Rhodesia Railways.

Others present include: Messrs. H. A. R. Binney and E. Woodbridge, British Standards Institution; A. Campbell, Chief Mechanical Engineer, Crown Agents; Colonel F. J. Bidulph, Ministry of Supply; Messrs. W. Cyril Williams, representing the Locomotive Manufacturers' Association of Great Britain; H. H. Holloway and L. B. Dick, representing the Railway Carriage & Wagon Builders' Association.

*Mr. P. R. Deshayes*

Who has taken up an appointment with the French National Railway Company in New York

Mr. P. R. Deshayes, who has relinquished his positions as General Representative of the French National Railway Company in the United Kingdom and Eire, and Managing Director of French Railways Limited, London, to take up an appointment with the French National Railway Company in New York, was born on August 17, 1912, and is an engineer graduate of the Ecole Centrale des Arts et Manufactures. After practical training in England in the works of the Renold & Coventry Chain Co. Ltd., at Manchester, he joined the Paris-Lyons-Mediterranean Railway in 1936. He was called up in August, 1939, as Lieutenant in the Artillery, and was a prisoner of war from June, 1940, to August, 1945, being liberated by the Soviet Army and sent to a camp in Russia. After his return to Paris, he resumed railway duties, as Head of the Control Section in Paris of the South Eastern Region Operating Department,

*Mr. C. M. Hannoyer*

Appointed General Manager, French Railways Limited, London

French National Railways. He was appointed General Representative of the French National Railway Company in the United Kingdom and Eire and Managing Director of French Railways Limited, London, in 1950. During his war service Mr. Deshayes won the Croix de Guerre.

Mr. C. M. Hannoyer, Inspecteur Divisionnaire (Operating) of the Aulnoye District, French National Railways, who, as recorded in our March 7 issue, has been appointed General Representative of the French National Railway Company in the United Kingdom and Eire, and General Manager of French Railways Limited, London, was born in Paris in 1920. He was educated in Paris and between 1941-43 studied at the Ecole Polytechnique, where he obtained his engineering diploma. He joined the French National Railways in 1943 and was appointed to the

*Mr. A. N. Butland*

Appointed Assistant Civil Engineer, North Eastern Region, British Railways

Operating Department of the Northern Region. He subsequently held the following positions: Assistant Chief of the Operating Control Section, Paris District; Inspecteur Divisionnaire (Operating), first of the Paris District and later of the Lille District; Chief of the Operating Control Section, Lille District (1947-50); and Inspecteur Divisionnaire (Operating) of the Aulnoye District (1950-52). As Chief of the Operating Control Section of the Lille District he was responsible for the traffic to and from the port of Dunkirk, and in particular for that of the Dover-Dunkirk train ferry.

Mr. A. N. Butland, O.B.E., B.A., B.Sc. (Eng.), A.M.I.C.E., District Engineer, Bristol, Western Region, who, as recorded in our March 21 issue, has been appointed Assistant Civil Engineer, North Eastern Region, York, joined the G.W.R. at Pad-

*Mr. G. D. S. Alley*

Appointed Assistant Civil Engineer (Permanent Way), Western Region

*Mr. George Dickinson*

Appointed a Traffic Costing Officer, British Transport Commission, London

*Mr. Cyril T. Jarman*

Appointed a Traffic Costing Officer, British Transport Commission, London

dington in 1924, and six years later transferred to the District Engineer's Office, Cardiff. He returned to the New Works section of the Chief Engineer's Office at Paddington in 1935, and after being engaged on plans for the proposed St. Germans to Looe new railway, was employed on the Central Line quadrupling from Greenford to Ruislip as Assistant Resident Engineer, and later as Resident Engineer. Mr. Butland served with the Royal Engineers during the last war and attained the rank of Lt.-Colonel. He was mentioned in despatches and awarded the O.B.E. (Military Division) for service in North West Europe. While serving with the forces he was appointed Assistant District Engineer, Taunton, and on December 1, 1947, returned to Paddington as Assistant to the Chief Engineer (Maintenance). In 1948, Mr. Butland was appointed District Engineer, Taunton, and transferred to Bristol in a similar capacity in July, 1949.

Mr. G. D. S. Alley, Permanent Way Assistant to the Civil Engineer, London Midland Region, who, as recorded in our March 14 issue, has been appointed Assistant Civil Engineer (Permanent Way), Western Region, gained the four-years' engineering course diploma at the former Royal College of Science, Ireland, and also graduated in engineering at the National University of Ireland. In 1926 he joined the L.M.S.R. in the Divisional Engineer's office at Crewe, and in 1930 was appointed Hallade Assistant to the Divisional Engineer, Western Division. Mr. Alley was appointed Assistant District Engineer, Abergavenny, in 1932, and then to similar positions at Crewe and Watford in 1939 and 1942 respectively. He became District Engineer, Abergavenny, in 1945, and District Engineer, Derby (South), in 1947. Two years later Mr. Alley was appointed Permanent Way Assistant to the Civil Engineer, London Midland Region.

Mr. George Dickinson, M.A., M.Inst.T., who, as recorded in our January 4 issue, has been appointed a Traffic Costing Officer, British Transport Commission, London, joined McNamara & Co. Ltd., road haulage contractors, in 1936. After experience in the traffic office he was appointed Personal Assistant to the Chief Executive Officer, and covered in this post a wide range of duties, until in 1946 he was transferred to the staff of Messrs. Maxwell Hicks & Company, Chartered Accountants, Commercial Managers of the company. He was subsequently appointed Managing Director on nationalisation in 1948, and succeeded in 1949 to the post of District Manager, N.W. District, in the South Eastern Division of the Road Haulage Executive. In January, 1951, he was seconded to the post of Chief Instructor at the Road Haulage Executive's Staff College at the Grove, Watford. Seconded to the Traffic Costing Service followed later in the year. Mr. Dickinson is a former Member of Council of the Institute of Transport, and he won in 1946 "The Institute 1944 Award" with a paper on classification and rates in the goods road transport industry. He is the author of "Road Haulage Operation," a handbook for students.

Mr. Cyril T. Jarman, who, as recorded in our January 4 issue, has been appointed a Traffic Costing Officer, British Transport Commission, London, was, before the 1944-18 war, on the travelling auditor's section of the Chief Accountant's office, L.M.S.R., Euston, and for a short period was located in the Manchester and Liver-

pool districts. During the recent war, he was commissioned in the Royal Air Force, serving in the United Kingdom, Egypt, the Low Countries and Germany. His appointments include those of R.A.F. Movements Liaison Officer at H.Q. 1 Corps B.L.A., Senior R.A.F. Movements Officer (Road/Rail) at H.Q. Lines of Communication in Brussels, and Senior Movements Staff Officer (Road/Rail/Air) at H.Q. 84 Group R.A.F. at Celle, near Hanover, with the rank of Squadron Leader. On leaving the R.A.F. in 1946 he became Night Traffic Manager at Bouts Tillotson Transport Limited at Waterden Road, London. In 1949 he was appointed General Manager of Holdsworth & Hanson, Leeds (B.T.C.) Limited, and on its formation early in 1950, Group Manager of the Central Leeds Group of the Road Haulage Executive. The Group was constituted by a fusion of the former Holdsworth & Hanson, Bouts Tillotson, Fisher Renwick, and other road interests in the Leeds area.

We regret to record the death of Mr. Thomas McPherson, Works Manager of Hurst, Nelson & Co. Ltd., Motherwell. Mr. McPherson had completed 55 years' service with the company.

Mr. Felix L. Levy, a Director of George Cohen Sons & Co. Ltd., and its associated companies, has been elected President of the London & Southern Scrap Iron & Non-ferrous Metal Merchants Association.

Mr. C. G. Roberts, formerly Chief Draughtsman to Tyer & Co. Ltd., has been appointed Chief Engineer. He is a member of the British Standards Committee for Mechanical & Power Signalling.

Mr. Henry Spurrier, Managing Director, Leyland Motors Limited, arrived at Nairobi by air last week en route for Rhodesia, where he will inspect a new branch of the company at Salisbury. He will later visit the assembly plant at Elandsfontein, near Johannesburg.

Mr. D. C. Brown, Sales Manager for the Newall Group of Companies, left London Airport on April 1 for a business tour of Australia, New Zealand, Canada and the U.S.A. lasting about 3½ months. The Newall Group comprises the Newall Engineering Co. Ltd., Optical Measuring Tools Limited, and Keighley Grinders (Machine Tools) Limited.

We regret to record the death on March 26, at the age of 69, of Mr. Horace Shankland, who retired two years ago as local Director at Fort Dunlop, Dunlop Rubber Co. Ltd. In 1941 Mr. Shankland was President of the Society of Motor Manufacturers & Traders. He also was a Fellow of the Institute of the Motor Industry, and a former Member of the Council of the Institute of Transport.

We regret to record the death on March 30, at the age of 67, of Sir Andrew Rae Duncan, G.B.E., Hon. M.I.E.E., Independent Chairman of the British Iron & Steel Federation's Executive Committee, and a Director of the North British Locomotive Co. Ltd., Dunlop Rubber Co. Ltd., and Imperial Chemical Industries Limited. He became Independent Chairman of the Executive Committee of the British Iron & Steel Federation in 1934, but relinquished this post in 1940 on becoming President of the Board of Trade. Later in the same year he became Minister of Supply and held that position throughout most of the war and until the 1945 General Election.

After 1945 he was the principal Conservative spokesman in opposing nationalisation of the iron and steel industry; he declined to seek re-election in 1950. Sir Andrew Duncan returned to the British Iron & Steel Federation as Chairman of the Executive Committee in 1945. He joined the board of the North British Locomotive Co. Ltd. in 1946. In 1947 he was Chairman of an independent tribunal which considered a scheme for the allocation of the proceeds of the sale of the British-owned Argentine railways.

At a Centenary Staff Dinner & Dance held recently by Tyer & Co. Ltd. presentations were made to Mr. T. W. Ballard, Works Manager, who has been with that company for 50 years.

We regret to record the death at the age of 69 of Mr. R. C. Jyrdal, Departmental Manager, Tariff & Accounts, Danish State Railways. He began his railway career 32 years ago as a traffic apprentice and subsequently became an assistant at several stations. In 1910 he went to the bureau of rates and fares at the General Directorate, and in 1927 became head of the bureau. He was appointed Departmental Manager, Tariff & Accounts, in 1937. Mr. Jyrdal had for many years been the Danish State Railways' representative at the International Tariff Congresses. He has been succeeded by Mr. J. F. T. Jensen, formerly head of the rates office.

INSTITUTE OF TRANSPORT

The election of Mr. C. T. Brunner to office as President of the Institute of Transport on October 1 was announced in our March 28 issue. The other officers elected for the year 1952-53 are as follows:

Vice-Presidents: Messrs. F. D. Arney, General Manager, Port of Bristol Authority; J. W. S. Branker, General Manager (International Affairs), B.O.A.C.; Sir Gilmour Jenkins, Secretary, Ministry of Transport; Messrs. S. Kennedy, Chairman, Tilling Group Management Board, and Part-time Member of the Road Passenger Executive; H. A. Short, Chief Regional Officer, North Eastern Region, British Railways; P. J. R. Tapp, Chairman, Meat Transport Organisation Limited, and Part-time Member of the Road Haulage Executive. **Honorary Treasurer:** Mr. A. L. Castleton, formerly District Goods Manager, Broad Street, L.M.S.R. **Honorary Librarian:** Mr. A. B. MacLeod, Stores Superintendent, London Midland Region, British Railways.

Ten Ordinary Members of Council will retire at September 30 and the Council has nominated the following nine Members and one Associate Member to fill the vacancies:

Messrs. M. F. Barnard, Establishment & Transport Officer, British Iron & Steel Federation; A. H. J. Bown, General Manager & Clerk, River Wear Commissioners; L. G. Burleigh, Transport Officer, Imperial Chemical Industries Limited; J. B. Burnell, Operating Manager (Central Road Services), London Transport Executive; J. T. Evans, Research Officer, Docks & Inland Waterways Executive (formerly Engineer & General Manager, Trent Navigation Company); W. Fraser, Managing Director, J. Spurling Limited; C. P. Hopkins, Chief Regional Officer, Southern Region, British Railways; J. E. M. Roberts, Executive Officer (Rates & Charges), Railway Executive; W. I. Scott-Hill, Regional Manager Overseas, British European Airways; W. A. Flere (Associate Member), Executive Officer, River Division, Port of London Authority.

Mr. Barnard and Mr. Bown are former Members of Council.

Ministry of Transport Accident Report

*Between Pollokshields East and Queens Park,
April 21, 1951, Scottish Region, British Railways*

Colonel R. J. Walker, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at 1.38 p.m. on April 21, 1951, between Pollokshields East and Queens Park, Scottish Region, when the 1.24 p.m. passenger special, Glasgow Central to Mount Florida, consisting of eight non-corridor coaches drawn by a 0-6-0 tender engine, stopped in section through loss of vacuum, was overtaken at about 20 m.p.h. by the 1.27 p.m. train, Glasgow Central to Kirkhill, consisting of seven non-corridor coaches drawn by a 2-6-4 tank engine. The impact was severe and the four rear compartments of the standing train were destroyed. Both were carrying a full complement of passengers, of whom three were killed; 74 were taken to hospital where 18 were detained and 66 others received minor injuries. Between the two signal boxes concerned, 946 yd. apart, the lines run in a deep, narrow cutting with high retaining walls traversed by six bridges which hampered

extending 85 yd. in advance of the starting signal reverses and locks that signal. All the signalling apparatus was found to be in proper order.

There is a permanent speed restriction of 25 m.p.h. in both directions, and to pass through the section takes between one and two minutes. From 1 to 2 p.m. on the day of the accident up line trains were following each other at 3 to 4 min. intervals. While the first train was in section the signalman in rear offered another and the signalman in advance pointed this out by telephone. The man in rear denied having sent any train; the other man, knowing his colleague was much more experienced, believed this and thought the first train must have been sent along another route and had been offered to him by mistake. He therefore cancelled the "train on" indication on his own instrument and accepted the second train. The Queens Park box should have been in charge of an experienced signalman, who had left his post to go to a

but seeing the starting and Queens Park distant off continued forward. He caught sight of the train ahead at about a carriage length. His speed would be about 20 m.p.h. The brake had no time to take effect.

The signalman at Queens Park accepted the first train at 1.31, and at 1.33, when "entering section" was received, obtained "line clear" and cleared his signals for it. A down train was offered, actually by a wrong bell signal, and as he and the stationmaster were consulting the special notice this was corrected. At this moment Pollokshields offered another up train. He pointed this out to the stationmaster and telephoned saying "You have already given me a 3-1 and entered it in section." The reply was "No, I have not." This conversation was repeated and he concluded that the first train had been signalled forward by mistake, put his instrument to normal, and accepted the second train. A minute or two later he saw people running along the track, and,

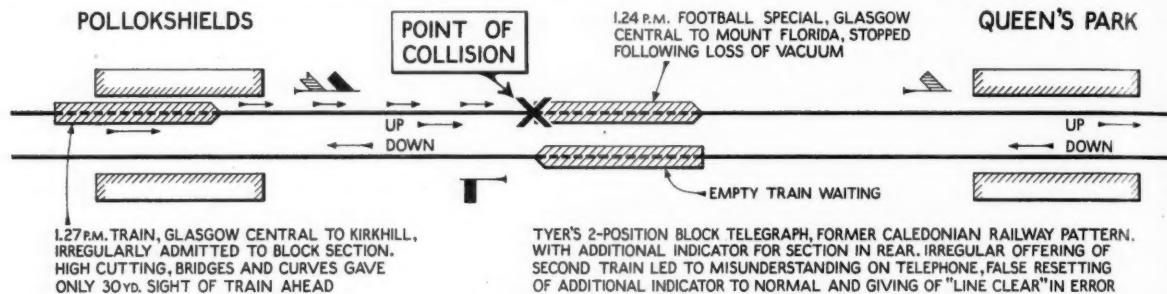


Diagram illustrating circumstances of accident between Pollokshields East and Queens Park, Scottish Region, April 21, 1951

the rescue work, but assistance was obtained without delay and the last of the injured reached hospital at 2.50 p.m. The engine of an empty stock train standing at the Pollokshields East down home signal was slightly grazed by the collision.

Both lines were blocked but the down was temporarily cleared to allow of running return football specials between 5 and 6 p.m., when it was closed again. Curvature prevented the driver of the second train from having more than about 30 yd. view of the obstruction. The accompanying diagram shows the lines and signals essential to an understanding of the case.

The line was being worked by Tyer's semaphore type 2-position block telegraph, former Caledonian Railway pattern, with mechanical third indication and accepting plunger lock for the section in rear. When "entering section" is acknowledged by ringing on the upper (red) plunger of the instrument the additional indicator is caused to show "train on," denoting that an approaching train is actually in section; while this remains in view the lower (white) plunger is locked so that another train cannot be inadvertently accepted. To remove this indication and free the plunger a button on the side of the instrument must be pressed in, which normally is done when giving "train out of section." There were no electrical block controls between instruments and signals on this section, but a track circuit in Pollokshields East Station locks the up home signal, and another,

football match, leaving it to be worked by one who was, strictly speaking, still a learner. He had been passed to take charge two days later and detailed to do so on the day of the accident during a slack period from 2.55 to 3.45 p.m., to accustom him to being in sole charge. The other man should have been there at the time when the mistake was made.

Evidence

The driver of the first train said he felt the brake beginning to drag as he approached the starting signal at Pollokshields and tried to overcome it with his large ejector, but the train stopped 126 yd. in rear of Queens Park home. The vacuum was 10 in. and he thought the chain had been pulled. He ran back to the guard, but could see no indicating disc showing. Both then went to the front looking at the discs and he then found the vacuum had risen to 18 in. so prepared to start. He was releasing the steam brake when the collision occurred. He did not know what caused the vacuum to drop.

The guard confirmed this evidence and said that although 4 men, whom he took to be railwaymen, were in his van he was certain there had been no interference with the brake. Unexpectedly put in charge at the last moment at Glasgow Central he could not say whether anybody was in the front van, or whether it was locked when the train left.

The driver of the colliding train said he was almost stopped at Pollokshields home,

realising something was wrong, sent "obstruction danger." He knew that in some boxes signalmen were allowed to change their times but did not know whether the man who should have been with him had such permission. That man told him he would go at 1 p.m. if it was all right for him; he had agreed and was not worried, as he felt quite capable of taking charge. He had been busy telling the stationmaster how trains were running and dealing with the incorrectly belled down train. Asked why he so easily allowed himself to be persuaded that the first train was not in section he replied that he knew the other man to be a special class signalman, who had a booking boy to help him, and so assumed the previous train probably to have been routed another way. He cancelled his record and wrote "error" against it.

The signalman at Pollokshields had an inspector with him for controlling the Circle lines traffic in the peak period. He admitted that when he offered the second train he had not had "out of section" for the first and that the Queens Park man said "Why have you offered me a second train, because the first one is not clear of my section" and also "you have offered me a train already." He thought he looked at the train register and saw the first had passed at 1.33 but there was, so far as he remembered, no entry covering receipt of "out of section." He knew the train had passed and assumed that it must have cleared the section. He could not recall having asked the boy if "out of

section" had been received; he might have done so and the boy might have replied that it had not. He then told Queens Park that he had not offered a train and there was no other train in section. Later he said he was not sure whether he checked the register before or after telephoning.

He was questioned carefully on why, after having been challenged and knowing he had not heard "out of section," he persisted that there was no train in the section and persuaded Queens Park to accept another, but no cogent reasons or direct answers could be elicited. He was difficult to question as he had an impediment, making it difficult for him to express himself and he was over-stressed by the inquiry. His memory seemed indistinct and his answers were vague and contradictory. Nevertheless the whole of his evidence was to the effect that once a train had passed he took it that it had cleared the section a minute later, whether or not he had received "out of section" but Colonel Walker thinks evidence so adverse to the man should not be taken at face value.

Little reliance could be placed on the confused, contradictory evidence of the train register boy. He remembered being asked whether "out of section" had been received and saying he had not heard it, but not any telephone conversation. Asked why he made entries for signals not given, he admitted inventing the times: it was "sometimes" his practice to do that. The inspector in the box was unable to throw any light on what happened; he was making tea and washing up.

The stationmaster, in charge for the time of both stations, went into Queens Park box about 1.30 to help mark the special train notice as trains passed. He heard the first one offered and also the down train, and the amended bell code for it, received while the original signal was being discussed. When the second up train was offered the signalman spoke to Pollokshields. The gist of the conversation was to ask whether another train had not been sent on 2 or 3 min. before. He took the answer to have been "No," for the signalman said "they did not send me any train, so I think it must be a mistake: it must be a train on the inner circle." He heard the second one accepted, but it did not occur to him that the cancelling signal ought to have been received first. He did not speak about the proper man being absent, thinking it wiser not to interrupt the signalman. Unauthorised changing of duty had not, to his knowledge, occurred during the fortnight he had been in charge.

This particular signalman, asked why he left without authority, replied that it was his and another man's custom to do that every Saturday they could, to attend sport. He admitted making false register entries. He knew the man whom he left had been passed fit to take duty after the weekend and it did not occur to him why that man had been given an afternoon slack period.

The stationmaster normally in charge was working temporarily at Cathcart. In November, 1950, he discovered these men changing duty without authority and spoke "sharply" to them, saying they were to obtain his permission, but did not check that they obeyed him. They continued the practice through November, December, and January. They were "just making a fool of him." He had a distinct instruction to examine carefully the signing on and off but had not done so.

The district inspector had known the Pollokshields signalman for a number of years. He was a good one with a

thorough understanding of his responsibilities but his impediment caused difficulty in extracting answers from him. The inspector was quite unable to account for the man's mistake or habit of assuming "out of section" to have been received. A little short-tempered, impatient and conscious of his skill, he might, with his impediment, have returned a curt answer to a learner challenging his working.

Another inspector considered the Queens Park man "a fine fellow" and was very satisfied with him. In accepting two trains as he did he probably felt he was dealing with a senior, more experienced, on whose statement he could rely. A third inspector confirmed this and could think of no other reason for the mistake made by these men.

Inspecting Officer's Conclusion

The accident was caused by the combined mistakes of the two men and mutual misunderstanding of their telephone conversation. The action of the man leaving his post contributed in no small degree to what happened and was in direct disobedience to orders.

Remarks

The inquiry disclosed a remarkably wide range of irregularities contributing, directly or indirectly, to the accident. An experienced signalman of good reputation and character apparently acted in a manner violating the fundamentals of signalling, and a train register boy habitually made entries in advance of the occurrence. In another box a signalman, also of good repute but much less experience, allowed himself to be misled into cancelling a block indication, which it was a main purpose of his instrument to give him, while a third left his post of duty, a habit for some time of others as well. Pages were found removed from the register, presumably to prevent that becoming known, and the boy mentioned above altered an entry, although specifically instructed not to.

Colonel Walker thinks that what the Pollokshields signalman said was not a true explanation of his actions. He was overwrought and probably found it difficult to express himself. His superiors thought highly of him. Another explanation is, however, to be found in the man's having full confidence in himself, and his character, combined with his impediment, led him to think, when challenged, that the new man at Queens Park had failed to see a train pass. It did not occur to him that he might be mistaken, and by then he had dismissed the first train from his mind and was concentrating on the other and some down trains. When saying he had not passed a train into the section he was thinking of the second one, but the other man was talking about the first. In this way the misunderstanding arose.

His first mistake was offering a train before "out of section" had been received, contrary to regulations, but he may have developed a habit of doing so in peak traffic. When challenged about the first train he was over confident and took no precaution to check the position, which he could have done. The two-position block gave him no indication of it, and his proper action should have been to check the challenge with the register, or, if still in doubt, to have applied Regulation 11 regarding stopping and cautioning trains in the opposite direction. Had he looked at the register, however, he would probably have seen a false entry.

Colonel Walker feels reasonably sure

that he replied at once, without leaving the telephone. During a busy peak period he watched this signalman working and found there were periods of intense activity when the man was doing one thing or another the whole time, while the noise of bells, gongs, and so on, was considerable and the speed and precision required were such that only a skilled and experienced man could have been expected to compete with successfully. Colonel Walker thinks he only managed so well because he knew the train sequence and timings and could anticipate movements. Work would have been similar when the mistake was made. Of boxes working like that there must now be very few not provided with more adequate equipment than these two-position instruments; conditions were favourable for a block working mistake and probably caused bad habits to develop in the signalman and boy.

The other man was confident of his ability and, on his first duty by himself, was faced with a situation requiring experience and knowledge of rules; he was not flustered by pressure of traffic, but was impressed by the other man's seniority and knowledge and thought he must be right and had signalled "entering section" by mistake. Cancellation is a normal occurrence, but had he reflected that two signals had been given for the train he might have become doubtful about the position. With more experience he would have insisted that a cancelling signal be given. Had he done so there is no doubt, Colonel Walker considers, the Pollokshields signalman would have refused and the whole misunderstanding been brought to light. Both men made honest mistakes, but the Pollokshields man made the more serious. The Queens Park man was more the victim of circumstances. The case is another example of how dangerous a telephone conversation can be if not accurately worded.

The action of the third man in deserting his post was, up to a point, no more than had been the custom there for some time, but it was aggravated by doing so in the peak traffic with an inexperienced man left to deal with it and against specific orders. He was a good signalman, eager to succeed, and no doubt felt himself to be wasting his time at such a box. (His recent application to be posted to a more important box had been refused). This does not excuse him, and his standard of discipline and sense of duty were lacking, but Colonel Walker considers he was not properly supervised and led. The false entries in the train book were clear evidence that the men knew they were doing wrong. It was extremely easy to detect them and evidence that, if made at all, inspection must have been most cursory and unobservant. The men must have known it, and a further example of that was the boy's action, in making fictitious entries in the presence of an inspector, who, in the box for 25 min. before the accident could tell Colonel Walker nothing of what happened.

If stationmasters and inspectors do not know how to use their authority, or allow themselves to be so easily hoodwinked, young men will cease to have respect for them and indiscipline result. It would be advisable to examine the whole question in this area and also ensure that this is not happening elsewhere.

The traffic has far outstripped the two-position instruments and an unnecessary burden of responsibility is thrown on the signalman. This has been recognised and

re-signalling with three-position instrument and class "C" controls is in progress. Two replacement instruments, now in use, were awaiting connection at Pollokshields when the accident took place. It is to be hoped that the signalling of the whole of this line will be treated as a priority matter.

It is unlikely that applying Rule 181 (f) would have averted the accident; nevertheless, this is, from the safety point of view, of very great importance, although occasion to do so happens infrequently to many enginemen, and it is the more likely to be forgotten when need arises. It is for consideration whether special steps should be taken to remind drivers and firemen of this and similar rules of rare occurrence which so vitally affect safety.

Track Circuiting on Electric Railways

At a meeting of the Institution of Railway Signal Engineers held in London on March 5, with the President, Mr. S. Williams, in the chair, a paper entitled "Track Circuits in d.c. Electrified Areas" was read by Mr. D. G. Shipp, Member of Council. After a reference to the origin of a.c. track circuiting some 50 years ago, the paper dealt with the modern a.c./d.c. type track circuit, using rectifiers, and then the older and very general types of single- and double-rail track circuit, using impedance bonds, the paper being confined to methods used where the rails served as the traction return. The resonated and auto-coupled type circuits were treated in detail, and the effect of frequency variations on both arrangements was discussed. The possibility of effecting economies by adopting different ratings for impedance bonds from those now customary also was discussed, together with some features of coded type circuits. Technical details of certain other track circuit adjustments were given in appendices and slides were shown to illustrate the points explained.

The President, moving a cordial vote of thanks to Mr. Shipp for his paper, stressed the great value of the information presented and the desirability of allocating an entire evening to the discussion. It was agreed to do this on the first date available in the forthcoming session.

New Ship for Newhaven-Dieppe Service Launched

A new cross-Channel passenger ship, ss. *Lisieux*, built to the order of the French National Railways, was launched on February 26 at the Graville, Le Havre, shipyard of the S.A. Forges et Chantiers de la Méditerranée. The ceremony was performed by Madame Boaux, wife of the Assistant General Manager of the S.N.C.F.

The new vessel, in replacement of war losses, is primarily intended for operation in the Newhaven-Dieppe service jointly operated by the French National Railways and British Railways. It has turbines of 22,000 h.p., with a speed of 25 knots, and will have a certificate for approximately 1,400 passengers.

A small delegation of British Railways officers attended the launching, and Mr. J. L. Harrington, Chief Officer (Marine), Railway Executive, replied on their behalf to a speech of welcome.

Mansion House Association Luncheon and Meeting

Lord Hurcomb on rising costs of transport operation

Mr. J. S. Maclay, Minister of Transport & Civil Aviation, and Lord Hurcomb, Chairman of the British Transport Commission, were the principal speakers at the annual luncheon and general meeting of the Mansion House Association on Transport at the Trocadero Restaurant, London, on March 28.

Proposing the toast of the Association, the Minister paid a tribute to its former President, the late Mr. W. H. Gaunt, whom he had been privileged to know for a number of years. In the work he was doing with the International Chamber of Commerce, Mr. Gaunt had been an unfailing friend and invaluable adviser, and the Minister offered the Association his sympathy in the great loss it had suffered.

The last two years had presented transport with many problems, but a wonderful job had been done by all concerned with moving goods about the country. Those who had responsibilities in connection with transport were fully alive to the need of assisting it with priorities. They were convinced of the necessity for seeing that the transport system got its share of the steel available and of other essential supplies.

Mr. M. F. Barnard, Chairman of Council, Mansion House Association on Transport, replied, and regretted the absence of their new President, Sir Albert Faulkner. There had been many complaints about fares being 74 per cent. above pre-war, he said, but freight charges on British Railways were 118 per cent. above pre-war. They were disappointed that another Minister had decided to penalise all who used road transport by putting a higher tax on petrol. Their association had suggested that the Minister might have issued red petrol again, but so many people objected to the colour that the resolution was not carried.

Mr. H. Tudor-Williams proposed the toast of "The Guests," coupled with the name of Lord Hurcomb, to whose great services to transport and to the country he paid tribute.

Lord Hurcomb, replying to the toast, said that a problem afflicting all forms of transport in most parts of the world was the rapidity with which general economic causes had inflated their expenses and the tardiness with which it was possible for them to adjust their charges to cover the altered level of wages and prices. The British Transport Commission had effected economies without which they might have been submerged by the rising flood of expenses. Forty-seven millions had been added to their wages bill alone in the 15 months since December, 1950, resulting from arbitration and awards in line with what had been done in other industries. There had been an increase of £15½ million a year in their fuel bill over the last three years, three successive Chancellors having increased the tax on fuel oil. They were contributing £27 million a year in oil duties and vehicle licences to the Exchequer, and no undertaking could go on contributing on that scale without increasing its charges if it was to pay its way, as they were bound to do. Nevertheless, progress of the organisation in all branches, would be reflected in the trading accounts for the past year.

When adjustments had to be made it was only equitable that those who in the past, through some historical accident or commercial reason, had enjoyed special

privileges or unreasonably favourable conditions, should be brought nearer to the general standard. Part of their difficulties arose from the fact that some of their customers were reluctant to face up to these facts.

Among those present at the luncheon, which was followed by the association's annual meeting, were:

Lord Gifford, Lord Latham, Mr. C. K. Bird, Sir Cyril Birchell, Sir L. Browett, Mr. C. G. Dandridge, Mr. C. Furber, Mr. K. W. C. Grand, Mr. F. Grundy, Sir Reginald Hill, Mr. C. P. Hopkins, Mr. E. S. Hunt, Sir Gilmour Jenkins ; Messrs. A. R. Knowles, F. L. Levy, L. D. Levy, A. G. Marsden, A. F. U. Maude, W. H. F. Mepsted, A. C. B. Pickford ; Major J. C. Poole ; Mr. F. A. Pope ; Maj-General G. P. B. Roberts, Maj-General G. N. Russell ; Messrs. S. I. Salmon, A. E. Sewell, R. M. Shone, W. H. Vine, H. B. Vernon, J. W. Watkins, B. White, H. T. Williams.

Westinghouse Brake & Signal Co. Ltd.

The 71st annual general meeting of the Westinghouse Brake & Signal Co. Ltd. was held on March 24, Captain A. R. S. Nutting, Chairman of the company, presiding.

In a statement issued with the report and accounts, the Chairman expressed the regret of the board at the deaths since their last meeting of Mr. H. G. Brown and Mr. W. H. Powell. Mr. Brown had served as their Managing Director and Deputy Chairman for many years and initiated and brought to fruition the amalgamation of the brake and signal interests. Mr. Powell had been their General Manager and a member of the board for many years, and participated in the development of the company's widespread interests.

Dealing with the results for the year to September 29 last, the Chairman said that the trading profit of their group of companies showed an increase of £222,169 over the previous year; of this the parent company contributed £129,723 and the subsidiaries £92,446. He considered these results most satisfactory during the present difficult period.

Adding to the group's trading profit of £701,140 the gross income from trading investments in associated companies in Europe the aggregate figure was £707,671. Apart from interest on an unsecured note and bank overdraft amounting to £28,851, the very large sum of £348,365 had to be deducted under the heading of taxation. This represented an increase of £121,405 over the previous year.

The Chairman said that the company's rectifier division continued its very successful career. They were convinced that the prospects for this division were excellent provided that it did not meet difficulties over securing raw materials. The brake division also had been most active.

New signalling schemes on the home railways had been restricted by financial considerations, but they were shipping considerable quantities of signalling apparatus to many countries abroad. In May, 1951, the York Station re-signalling, the largest relay interlocking system in the world, had been brought into use. This

contract had been received before the war, but work was suspended in the war years and resumed at the end of hostilities. The financial side of the contract had been upset by this inevitable interruption, and by increased costs, particularly labour costs, so that the contract price became quite unrelated to the actual cost to their company of the work and services involved. This whole question was now under review with the authorities.

The Chairman said there was no doubt that the railway engineers and their company's own technical staff must be congratulated upon the very satisfactory conclusion of this large and complicated signalling project which, they were informed, was giving every satisfaction.

The board had given careful and sympathetic consideration to the question of the dividend and felt it advisable and necessary not to increase it this year, but to retain it at 14 per cent. They could not ignore the views of Her Majesty's Government as expressed by the Chancellor of the Exchequer and supported by the leading responsible trading associations in the country.

The report and accounts were adopted.

Staff & Labour Matters

Award for Senior Salaried Staff

The Chairman of the Railway Staff National Tribunal, Sir John Forster, has announced his decision on the claim by the British Transport Officers' Guild and the Transport Salaried Staffs' Association for an increase of 10 per cent. in the salaries of railway staff above the Special Class categories, but whose present salaries are less than £1,600 a year.

The Claim was submitted to Sir John Forster in accordance with the machinery of negotiation to which the Railway Executive on the one hand and the Guild and T.S.S.A. on the other are parties. Questions which involve issues of major importance may be referred for decision to the Chairman of the Railway Staff National Tribunal, and after failure to reach agreement on the claim for improved rates of pay, it was referred to Sir John Forster on March 3.

Mr. W. P. Allen, Member for staff matters, appeared for the Railway Executive, Mr. W. R. Davies for the B.T.O.G., and Mr. G. B. Thorneycroft for the T.S.S.A.

The Chairman awarded that the salaries of staff covered by the present claim shall be increased by the amounts shown below, with effect from September 3, 1951:

Annual salary	To be increased by
£700-799	56
800-999	60
1,000-1,199	65
1,200-1,399	70
1,400-1,599	75

Strike of Engineering Apprentices

The strike of engineering apprentices in support of their claim for an increase of £1 a week is shewing signs of breaking. On the advice of union officials some apprentices decided to return to work last Monday. In Lanarkshire factories where the men struck because they were asked to perform work normally done by apprentices, it was agreed that both men and apprentices should resume work on March 31.

Railway Shopmen's Wage Claim

The award of the Industrial Court which, as announced last week, gave an increase of approximately 8 per cent. in

the pay of railway shopmen, has been accepted by the N.U.R. and the Confederation of Shipbuilding and Engineering Unions, so that effect is now being given by the Railway Executive to the award with retrospective effect to September 3, 1951.

Parliamentary Notes

Closing of Branch Lines

Mr. W. F. Vane (Westmorland—C.) on March 24 drew attention to local dissatisfaction at failure to provide bus services in lieu of passenger train services withdrawn from branch lines.

Mr. J. S. Macay (Minister of Transport) suggested that this was a matter for the local Area Consultative Committee.

Questions in Parliament

Defence Work in Railway Shops

In a written reply to Mr. P. Smithers (Winchester—C.) the Minister of Supply, Mr. Duncan Sandys, said he had already issued one direction enabling the Railway Executive to undertake non-railway work and was examining the matter with the Executive. In order to enable them to undertake non-railway work it was necessary to issue a direction for each order.

Capital Formation Expenditure

Mr. Gerald Nabarro (Kidderminster—C.) on March 25 asked the Chancellor of the Exchequer to state the estimated formation expenditure in 1952 for the nationalised industries; the measure of control to be exercised over capital investment in such industries; and the extent to which capital investment curtailment, similar to that in the private sector of industry, would apply to them.

Mr. R. A. Butler wrote in reply: In view of the uncertainties of the economic situation I do not propose to publish a detailed estimate of capital formation expenditure by individual industries in 1952. The Government has laid down ceilings for investment by nationalised industries. In doing so, it had regard to the basic character of these industries. It is quite possible that shortages of materials will prevent totals from being fully attained. All substantial expenditure by nationalised industries on new buildings or works is licensed or authorised under Defence Regulation 56A.

Passenger Fare Increases

Mr. Arthur Lewis (West Ham North—Lab.) on March 25 asked the Minister of Transport, if he would give the percentage increases in road and rail passenger transport charges since 1946 to the latest stated date.

Mr. J. S. Macay in a written answer stated:

British Railways, for journeys not wholly within the London Area or on the Tilbury Line.

Fares were increased from 33½ per cent. above prewar (25 per cent. for season ticket rates and workmen's fares) in 1946, to 55 per cent. above prewar in 1947. There has been no further change to date, except for a 10 per cent. increase in monthly return fares on January 1, 1952.

London Transport (road and rail), and British Railways for journeys wholly within the London Area and on the Tilbury Line.

At the end of 1946, London Transport fares were about 16 per cent. above prewar overall, while fares on British Railways

for the above-mentioned journeys had been increased as for journeys not wholly within the London Area. All these fares are now governed by the B.T.C. Passenger Charges Scheme, 1952, and are estimated to be about 86 per cent. above prewar overall.

Trams, Trolley Vehicles, and Omnibuses outside London Area.

On trams and trolley vehicles, I have authorised certain increases in respect of individual undertakings, but it is not possible to state the average overall percentage increase. For buses, the increases are authorised by the Licensing Authorities, and I have no detailed information.

Contracts & Tenders

An order for 200 25-ton bogie covered goods wagons has been placed with the Metropolitan-Cammell Carriage & Wagon Co. Ltd. by the Crown Agents for the Colonies. The wagons are for the Gold Coast Government Railway.

The Egyptian State Railways have placed a contract with Uddeholms Aktiebolag, Uddeholm, Sweden, for steel boiler tubes. The order is valued at £25,572.

The Crown Agents for the Colonies have placed the following contracts for the East African Railways & Harbours, Kenya & Uganda Section:—

Hurst, Nelson & Co. Ltd.: 184 bogie covered goods wagons.
Metropolitan-Cammell Carriage & Wagon Co. Ltd.: 55 underframes for four-wheel brake-vans.

The Chicago, Milwaukee, St. Paul & Pacific Railroad, U.S.A., has placed a contract for ten all-dome lounge cars with the Pullman Standard Car Manufacturing Company.

A recent Reuters report states that orders for 560 100-ton ore wagons and for 66 other wagons have been placed with the Magor Car Export Corporation, U.S.A., by the Orinoco Mining Company for iron-ore transport in Venezuela. The Orinoco Mining Company has also placed orders for nine diesel-electric locomotives and for a 25-ton breakdown crane.

The Danish State Railways have recently placed a contract for four diesel-electric locomotives with General Motors Corporation, U.S.A., through that company's licensee for Europe, Nydquist & Holm Aktiebolag, of Trollhättan, Sweden. The mechanical parts will be delivered by A/S Frichs, Aarhus.

The locomotives will be of 1,500 h.p. and will have two six-wheel bogies; their weight in running order will be about 100 metric tons. The diesel engine, dynamo, and traction motors will be of General Motors standard design. The locomotives, which will be capable of hauling express passenger trains of up to 500 tons and goods trains of up to 1,000 tons, will have a maximum speed of 120 km.p.h.

An earlier Danish State Railways order with Frichs for 40 diesel-electric motor-coaches of the Railways' standard 500 h.p. "MO" type is at present under delivery and a further 20 coaches of the same type has recently been ordered.

The Department of Railways, New South Wales, is inviting tenders for 100 2-ft. gauge wagons. Further details are given under Official Notices on page 391.

According to a report by the Board of Trade, Special Register Information Service, the closing date of the Egyptian State Railways call for tenders for the Cairo-Helwan electrification has been postponed from April 5 until June 4. The tender was previously referred to in our January 25 issue.

The Canadian National Railways have invited tenders from Canadian and American builders for 194 passenger train vehicles. The equipment, which is to be of all-steel construction, is as follows: 47 first class coaches; 74 sleeping cars; eight buffet lounge cars; five parlour-buffet cars; 20 tourist cars; 20 dining cars; 20 parlour cars.

The Belgian State Railways have issued a call for tenders (No. 2652/474) for the supply of electro-mechanical signalling equipment, according to a recent statement by the Board of Trade, Special Register Information Service.

Tenders should reach the Societe Nationale des Chemins de fer Belges, Direction du Material et des Achats, Brussels, before 2.30 p.m. on April 16. A copy of the tender documents in French is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade, Commercial Relations & Export Department. A further copy is available for loan in order of written application to the Department. Reference C.R.E./11733/52 should be quoted.

The United Kingdom Trade Commissioner at Karachi has notified the Board of Trade, Commercial Relations & Exports Department, that the Government of Pakistan, Ministry of Communications (Railway Division), has issued a call for tenders for the supply of the following wagons:

140 broad gauge dismantled covered cattle wagons, "CMR" type, complete with underframe, vacuum-brake fittings, drawgear, and buffering gear.

1,507 broad gauge dismantled covered goods wagons, "CR" type, complete with underframe, vacuum-brake fittings, drawgear, and buffering gear.

Tenders should reach the Office of the Director General (Railways), Railway Division, Ministry of Communications, Government of Pakistan, Karachi, before 12 noon on May 17.

The Special Register Information Service states that a copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Commercial Relations & Exports Department. Reference CRE/11765/52 should be quoted. Further copies of the tender documents and particular specifications can be obtained from the Office of the Director General (Railways), Railway Division, Ministry of Communications, Karachi, on payment of Rs.100 a set.

A further report from the Board of Trade, Special Register Information Service, has given further details of the call for tenders by the Central Railway of Brazil for electric train sets, previously referred to in our March 14 issue. The requirements are for 200 metre-gauge motor coaches for lines electrified on the overhead system, and 400 trailer carriages.

The 200 train units to be formed from these coaches will comprise:—

- 50 second-class motor coaches
- 100 first-class trailers
- 150 third-class motor coaches
- 300 third-class trailers

Firms wishing to tender should instruct their Brazilian agents to communicate with the Head of the Electro-Technical Department, Estrada de Ferro Central do Brasil, Rio de Janeiro, who is also prepared to distribute copies of the full specifications. Tenders are to be submitted by April 14. A copy of the specification documents in Portuguese is available for inspection at the Board of Trade, Commercial Relations & Exports Department, by representatives of United Kingdom manufacturers.

Notes and News

Vacancies for Civil Engineers.—The Eagle Construction Co. Ltd., Scunthorpe, have vacancies for civil engineers, with railway experience. See Official Notices on page 391.

Vacancy for Draughtsman.—British Railways (London Office) require a draughtsman skilled in the design of reinforced concrete bridges and structures. See Official Notices on page 391.

Draughtsmen Required.—Draughtsmen, with experience of steam or electric traction for work on mechanical design of diesel-electric locomotives, are required. See Official Notices on page 391.

Vacancy for a Rate Fixer.—A rate fixer is required by a firm in the Midlands. Preference will be given to men possessing knowledge of locomotive work. See Official Notices on page 391.

Institution of Railway Signal Engineers.—The Institution of Railway Signal Engineers is to hold its summer meeting in Paris, between May 22-26. Several French National Railways signalling installations will be visited.

Gas Turbine Locomotive Tests.—In an article last week describing tests of the Metrovick gas turbine locomotive of the Western Region, the speed at Hemerdon box with 609 tons was given as approximately 40 m.p.h. This figure should have been 18 m.p.h., the speed of 40 m.p.h. being recorded at Plympton box before beginning the steepest parts of the ascent.

Record B.R. Iron and Steel Carrying.—The biggest forwarding of iron and steel on British Railways from the principal steel works for over twelve months—209,232 tons—was recorded for the week ended March 22. Despite unfavourable weather conditions, British Railways conveyed 382,340 tons of coal from deep mined pits and opencast sites during the 48 hours ended 6 a.m. on March 31, making 3,203,180 tons for the week.

Southern Region Lecture & Debating Society.—The last indoor meeting of the present session of British Railways, Southern Region, Lecture & Debating Society was held at the Chapter House on March 26, with Mr. C. P. Hopkins, Chief Regional Officer, and President of the Society, in the chair. The three winners of the prize essay competition read their submissions; the first two on "Under existing economic conditions, how best can the transport industry be made attractive to labour?" and the third on "In what manner can co-ordination of transport in the United Kingdom be improved?" Prizes were awarded as follows:—Messrs. E. J. Pond, Goods Agent, Poole, first prize; W. L. Hadgraft, Accounts Office (Audit), Dorking North, second prize; R. Reading,

Stationmaster, Selling, third prize. Two of the judges, Mr. W. C. Brudenell, Editor, *British Railways Magazine*, and Mr. F. L. Hancock, Assistant to Commercial Superintendent (Passenger), North Eastern Region, commented on the entries in the competition. Mr. Alex J. Webb, General Superintendent (Staff & Training—Railways), London Transport Executive, who also judged the papers, was unable to be present. Immediately after the close of the essay reading, the Society held its annual general meeting.

Easter Services, Eastern and Western Regions.—The Eastern Region of British Railways will run 498 additional main line trains over the Easter holiday from April 9-16, with a maximum of 162 on Thursday, April 10. On that day there will be 15 additional trains from Kings Cross to Newcastle, 13 to Leeds and Bradford, and nine from Liverpool Street to Norwich. Over the period April 10 to 15, the Western Region will run some 260 additional long-distance trains. On this Region, also, April 10 is expected to be the peak travel day, and provision has been made for 41 relief trains to leave Paddington for the West of England, South Wales and the Midlands on that date.

Durham County Council: the Closed Shop.—The Joint Emergency Committee of the Professions has asked the Durham County Council to give an undertaking that its professional employees shall not be subjected to the policy of compulsory trades union membership. The Committee has imposed a time-limit on further exchanges in this dispute, which has lasted more than a year, and if no satisfactory undertaking has been received by April 30, it "will be constrained to take further action to protect an essential principle of professional freedom." Professional organisations represented on the Committee include the Engineers' Guild, which has already made representations on this matter to the County Council, as recorded in our issue of December 1, 1950.

Special Trains for Scotland-England International Match.—Seventy special trains will convey crowds to the International match between Scotland and England at Hampden Park, Glasgow, tomorrow, April 5. They will converge on Glasgow from all parts of Scotland, and from London, Birmingham, Manchester, Northampton, Woolwich, Newcastle, Sheffield, and other places south of the Border. Many of the trains will run direct to stations adjacent to Hampden Park. Those from Greenock and Paisley will serve Mount Florida, and those from Stirling, Edinburgh, Falkirk, Kilmarnock, Shotts, and many stations in Lanarkshire are being run to Kings Park Station. A special service for passengers travelling via Glasgow is being introduced between Glasgow Central and Mount Florida; the trains will leave Central every few minutes between 11.45 a.m. and 2.30 p.m.

Removal of Irish Travel Restrictions.—Replying to a question in the House of Commons on March 28, the Home Secretary, Sir David Maxwell Fife, said that after careful consideration he had decided that the present system of control of passengers travelling between Great Britain and Northern Ireland, and Great Britain and the Irish Republic, should be abolished, and it would be discontinued on April 7. From that date it would be unnecessary for passengers travelling on the routes in question to

OFFICIAL NOTICES

The engagement of persons answering situations vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

CIVIL ENGINEERS, preferably with Railway Experience. Reply: Stating qualifications and salary required to—EAGRE CONSTRUCTION CO., LTD., East Common Lane, Scunthorpe.

BRITISH RAILWAYS (London Office) require draughtsmen skilled in the design of reinforced concrete bridges and structures and preferably having a working knowledge of prestressed concrete design. Good opportunity for permanency and promotion. Apply to—CIVIL ENGINEER'S OFFICE, Paddington Station.

ASSISTANT Chief-Draughtsman required by Permanent Way Manufacturers in the East Midlands. Must be experienced in British Standard and Private Sidings practice and able to take site surveys etc. Only those with P.W. experience need apply. Superannuation scheme, 5 day week, canteen, etc. Write stating age, experience, salary required to—Box 443, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

DEPARTMENT OF RAILWAYS,
NEW SOUTH WALES, AUSTRALIA

TENDERS are invited for the manufacture, supply and delivery of 100 Muck Skips to 2-ft. gauge and approximately 2½ cubic yards truck capacity with steel or timber bodies; alternatively for under-carriages without bodies. Specification, Drawing and Tender forms (2s. 6d. per set) may be obtained from the AGENT-GENERAL FOR NEW SOUTH WALES, 56, Strand, London, W.C.2 (Reference F.7155) to whom Tenders are returnable until noon on Wednesday, May 14, 1952.

LOCOMOTIVE, CARRIAGE AND WAGON SENIOR DRAUGHTSMAN 30/35 years of age. Qualifications: Must have served a full general apprenticeship in an Engineering workshop (preferably Railway) and have had at least five years' drawing office experience with some time in an executive capacity. A knowledge of Spanish an advantage. Future prospects. Apply to the Secretary, PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

DRAUGHTSMAN required by Gloucester Railway Carriage & Wagon Company, Gloucester, preferably with Steel Car or Diesel Car experience, 5-day week, Pension Scheme in operation. Apply LOCAL MINISTRY OF LABOUR AND NATIONAL SERVICE.

RUNNING Superintendent for the Southern Railway of Peru, must have served apprenticeship in railway workshop and ten years' experience as an administrative and technical officer. Knowledge of Spanish desirable. Must be under 50 years of age. Apply Secretary, THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

obtain special documents for the journey or to obtain leave to land from an immigration officer. Aliens would still have to carry documents establishing their nationality and identity; and amendments had been made to the Aliens Order to make possible the imposition on aliens coming from the Republic of conditions such as were normally attached to the grant by an immigration officer of leave to land in the United Kingdom.

Institution of Locomotive Engineers.—At a general meeting of the Institution of Locomotive Engineers to be held at 5.30 p.m. on April 16, at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, Lt.-Colonel L. F. R. Fell will read a paper on "The Fell Diesel Mechanical Locomotive."

Diesel Engine Users' Association.—The annual luncheon of the Diesel Engine Users' Association will be held at 12.30 for 1 p.m. on April 17, at the Connaught Rooms, Great Queen Street, W.C.2. The principal guest will be Vice-Admiral (E) Sir Denis C. Maxwell, Engineer-in-Chief of the Fleet.

New Brush Electric Issue.—Resolutions were passed at an extraordinary meeting of the Brush Electrical Engineering Co. Ltd. on March 12, agreeing to the issue of 660,000 £1 preference shares. At the same time minor amendments have been made to the articles to safeguard the rights of the new stockholders. The offer made to stockholders of the National Gas & Oil Engine Co. Ltd. by the Brush Electrical Engineering Co. Ltd. has been accepted by 90 per cent. of the holders of National preference shares, so that the offer has now become unconditional.

More London Tramway Abandonments.—On the night of April 5-6, London Transport tram routes 33 (West Norwood-Manor House) and 35 (Forest Hill-Highgate Archway) will be withdrawn and buses substituted. Some 17.8 route miles of tramway are affected and the withdrawal of these routes brings to 55 the total route-mileage abandoned under the post-war tramway abandonment programme of

London Transport. Besides ending tramway operation in North London, this stage will mean the disuse of the Kingsway Subway, opened in 1906 between Theobalds Road and Aldwych and extended to the Embankment in 1908 and worked by single-deck cars until enlarged in 1930 for operation by double-deck cars. No decision has yet been reached on the future of the Subway.

Institute of Transport.—An Institute of Transport informal luncheon will be held at 12.30 for 1 p.m. on April 22 at the Connaught Rooms, Great Queen Street, W.C.2. The address will be given by Major R. H. Thornton, Director, Alfred Holt & Co. Ltd. and a member of the board of B.O.A.C.

C.P.R. Results in 1951.—Results of the Canadian Pacific Railway for the year ended December 31, 1951, show that gross earnings advanced from \$378,576,688 to \$428,911,639 but net earnings were reduced from \$38,020,357 to \$26,812,832, because of working expenses, which increased to \$402,098,807 from \$340,556,331. Net income from other sources, after taxation of \$5,800,000 (\$2,600,000), was \$29,343,635 (\$23,236,264), of which net earnings from steamships rose from \$3,139,592 to \$7,630,273. Net income was \$43,307,470, against \$47,867,011. The dividend on the ordinary stock, already announced, was maintained at 6 per cent.

Tyne Improvement Commission.—A report by Sir William A. Souter on the activities of the Tyne Improvement Commission was read by Mr. B. Eliot Common, Chairman of the board at the meeting on March 18. Gross receipts of £1,385,928 were about £14,000 less than in the previous year. Expenditure was about £4,000 less. The surplus for the year was £11,020 after making provision for debt redemption, £92,617, in accordance with the 1950 Act. The financial results for the year must be considered as satisfactory as they had been achieved in spite of a fall in the shipments of coal. Total shipments for last year were 8,677,114 tons, compared with 9,486,266 tons for 1950, a decrease of 809,152 tons. The whole of this decrease

JUNIOR TRAFFIC OFFICIAL with Railway Traffic apprenticeship experience required for the Southern Railway of Peru, age 20/25 years single, knowledge of Spanish would be an advantage. Apply to the SECRETARY OF THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

RATE FIXER required by old established Midland firm. Applicants must be experienced in medium heavy engineering. Preference will be given to men possessing knowledge of locomotive work. Send details of previous employment and salary required to—W. G. BAGNALL LIMITED, Castle Engine Works, Stafford.

DRAUGHTSMEN required with experience of steam or electric traction for work on mechanical design of diesel-electric locomotives. Apply to Box 452, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

GENERAL MANAGERS. Are you satisfied with your present income from Trade Advertising at stations? Railway Publicity and Advertising Manager who has specialised in this subject and has increased his Railways' income from the source tenfold in as many years is prepared to receive offers of employment.—Box 460, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

JUST PUBLISHED.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth, Cr. 8vo, 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

was in coal shipped foreign, namely, 784,230 tons. Coastwise shipments were about the same figure as the previous year because although there was an increase to London of 139,784 tons there was a decrease in coastwise shipments excluding London of 156,811 tons. There had been a considerable increase, amounting to 267,887 tons, in the import and export of general merchandise. The regular cargo and passenger services to Bergen and Oslo had a busy year. Both services were to be supplemented by new vessels now building in this country. In addition, the Bergenske Company had agreed to undertake a radical improvement in the facilities provided for passengers at the Tyne Commission Quay, which no doubt in course of time would make this service still more popular.

Automatic Luggage Lockers at Glasgow Central.—The Scottish Region has installed 24 automatic left luggage lockers at Glasgow Central station. Each locker measures 18 in. high, 16 in. wide and 29 in. deep, and is controlled by an individual lock. These locks are regularly changed or replaced in the interests of complete security. After depositing luggage, the depositor can, by inserting 6d. in a slot, obtain the key to what in effect is a private locker, and may withdraw the contents at any time within 24 hr. If left longer than 24 hr. the luggage is removed to the main left luggage office in the station, where it can be claimed on production of the numbered key and proof of identity. These are the first automatic luggage lockers to be installed in Scotland by British Railways.

Scottish Seed Potato Haulage.—Since the end of October large quantities of seed potatoes have been transported from Scotland to England. In the week ended March 1 the highest weekly tonnage was carried for over ten years—24,053 tons. This brought the total so far this season to 239,155 tons, which required 37,260 wagons. The potatoes are loaded at stations in East Lothian, Fife, Angus, Aberdeen, Perth, and Inverness, and are concentrated in Leith yards, whence full train loads of 40 wagons are marshalled and run direct to Lincoln, Boston, Spalding, Peterborough and many other destinations in eastern

England. Special through trains are sent from Perth to Carlisle for the western districts of England. During the season ending in the middle of April it is expected that 380,000 tons of seed potatoes will have been despatched from Scotland.

Availability of Early Morning Fares.—Early morning fares are now available on the London lines of British Railways and on the road and rail services of London Transport (other than Green Line Coaches) on Sundays, Christmas Day, Good Friday, and bank or public holidays, on the same terms and conditions as on other days. This availability became effective as from March 30.

L.M.R. Easter Holiday Expresses.—A programme of 841 extra long-distance trains for Easter has been arranged by the London Midland Region in an attempt to provide a seat for every passenger. Peak outward days will be April 10 and 11, with 201 and 112 trains respectively; for returning travellers there will be 195 extras on April 14 and 153 extra trains on April 15.

G.I.P.R. ex-Officers' Annual Dinner.—The third annual dinner of ex-officers of the Great Indian Peninsula Railway was held at Oddenino's Hotel on Friday, March 21. Sir T. Guthrie Russell was in the chair, and also among those present at the dinner were:

Messrs. A. E. Aylott, S. Barber, J. Clegg, C. M. Cock, J. N. Compton, Sir G. E. Cuffe, Mr. G. W. Dawson, Colonel R. B. Emerson, Messrs. E. L. Ensor, G. E. Everett, J. E. Fanshawe, A. J. Frazer, W. E. Fritchley, A. G. T. Glaisby, C. Graham, C. E. Hall, R. J. Harris, T. Hill, W. Hood, Lt.-Colonel R. Horsfield, Messrs. L. A. Hoyle, E. Ingolby, F. G. Langdon, D. S. McGee, J. W. Morrison, A. E. Mould, R. Roche, C. I. Routh, D. Scott-Scott, O. G. Stanley, J. R. Tattersall, J. C. Wightwick, H. Wood, M. H. Wynne.

Forthcoming Meetings

April 7 (Mon.).—Institute of Transport, Metropolitan Section, at 80, Portland Place, W.1, at 5.30 for 6 p.m. "Administration in Transport," by Mr. R. M. Robbins.

April 7 (Mon.).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, W.14, at 7 p.m. "Pre-Grouping Great Western Coaches and their Construction in Model Form," by Mr. Michael Longridge.

April 8 (Tue.).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1, at 5.30 p.m. Automobile Division: "Long-Distance Diesel Buses on the European Continent," by Mr. J. A. Steenman.

April 8 (Tue.).—Institution of Locomotive Engineers. Summer Meeting, at Rugby.

April 8 (Tue.).—Permanent Way Institution, Leeds Section, at the Church Institute, Albion Place, Leeds, 1, at 7 p.m. "Some Estate Department Activities as Affecting the Permanent Way," by Mr. J. R. D. Mitchell, District Estate Agent, Leeds, North Eastern Region.

April 16 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. "The Fell Diesel Mechanical Locomotive," by Lt.-Colonel L. F. R. Fell.

Railway Stock Market

A feature of stock markets has been the renewed demand for British Funds, which further improved and contrasted with continued uncertainty in most other sections. Industrial and mining and plantation groups were affected by E.P.L. considerations, though some industrial shares were marked up in the belief that despite this new tax there will be good prospects of dividends being maintained. A factor which has also kept industrials in check is the assumption that important new issues may make their appearance shortly. Most of these will probably be confined to shareholders, but later on, public issues of shares are expected. It is hoped, however, that there will be no big rush of issues; otherwise markets will be depressed, because shareholders will sell existing shares to take up new shares offered on attractive terms.

The City still takes the view that E.P.L. is too complicated. It bears heavily on companies which have followed a progressive policy over the past few years, while less progressive concerns with a stable earnings record will not be affected very much by this new tax. When the Finance Bill has become law it is expected that many companies will decide to issue official statements to shareholders showing the effect of E.P.L. Shareholders will not be able to make the calculations themselves unless they know a company's earnings for the standard years 1947-48-49. Official calculations of E.P.T. would not only help shareholders, but also remove uncertainty in markets.

Foreign rails have reflected the quiet conditions in markets generally. United of Havana stocks attracted a little buying on the view that they would be worth well above current prices if there were a takeover development on a fair and equitable basis. The 5 per cent. debentures, after declining, showed a partial rally to 17½. Canadian Pacific was strong at \$70 following publication of the annual report.

Leopoldina preference stock was wanted and strengthened to 28½; the ordinary stock was 11½. Leopoldina Terminal debentures were 17½ and the ordinary units changed hands around 8½d.

San Paulo 10s. ordinary units firmed up to 13s. 3d. Dorada ordinary stock has changed hands around 37½. Guayaquil &

Quito 5 per cent. bonds were dealt in around \$35½, and International Railways of Central America no par stock marked \$14. Manila ordinary shares have transferred around 1s. 6d.; the preference shares were 7s. 1½d. and the "A" debentures 66.

Nyasaland Railways 3½ per cent. debentures were 74½ and White Pass Yukon 5 per cent. debentures \$31½. Antofagasta ordinary and preference stocks were 14½ and 65 respectively. Brazil Rail gold bonds were 5½, Mexican Central "A" bonds 76½, while Nitrate Rails shares at 22s. 6d. and Talat at 17s. 3d. recorded little change.

There were again few dealings in shares of road transport companies, which have remained firmly held in the belief that generally there seem satisfactory prospects of dividends being maintained, and that, moreover, in most cases there appears to be a favourable E.P.T. standard.

Southdown were 78s. 9d., Lancashire Transport 42s. 6d., but West Riding receded to 33s. East Kent marked 70s. and Ribble Motor 6½ per cent. preference 22s. 9d. B.E.T. deferred stock was £335.

There has been a steadier tendency in engineering shares on wider recognition that in most instances there are good prospects of dividends being maintained despite E.P.L. Guest Keen rallied to 48s. 3d., while John Brown at 42s. 9d. were firm on higher dividend hopes. Vickers were firmer at 44s. 7½d.; the higher payment by Cammell Laird has aroused hopes that Vickers also may pay more, although this is not generally expected. The £6,000,000 arising from nationalisation of the Cammell Laird English Steel holding has been transferred to reserve. The market assumes that Vickers will also place to reserves its English Steel compensation, and that because of the prospect of steel denationalisation there will be no special distribution to shareholders arising from English Steel. General Electric have been firmer at 77s. 6d. as have Associated Electrical at 68s. 6d. Elsewhere, T. W. Ward were 66s. 6d.

Beyer Peacock eased to 28s. 6d. and North British Locomotive to 16s. Birmingham Carriage were 32s. and Hurst Nelson 48s. 6d., Vulcan Foundry 21s. 3d. Gloucester Wagon 11s. 9d., Wagon Repairs 5s. shares 10s. 9d., and Charles Roberts 20s. 9d.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		X %	Aggregate traffics to date
			Total this year	Inc. or dec. compared with 1949/50		
			Total	1950/51		
South & Central America						
Antofagasta ..	811	21.3.52	£176,720	+ 72,290	12	£1,762,480
Costa Rica ..		Jan., 1952	£1,495,633	+ £340,108	31	£8,756,306
Dorada ..	70	Feb., 1952	35,330	+ 3,014	9	65,700
Inter. Col. Amer. ..	794	Jan., 1952	\$1,315,737	+ 8393	4	\$13,157,737
Paraguay Cent. ..	274	28.12.51	G\$289,547	+ G102,888	26	G\$823,911
Peru Corp. ..	1,050	Feb., 1952	\$7,931,000	+ \$1,312,000	35	\$65,979,000
" (Bolivian Section) ..	66	Feb., 1952	Bs.15,175,000	+ Bs.3,319,000	35	Bs.126,266,000 + Bs.30,000,000
Salvador ..	100	Dec., 1951	c248,000	+ c2,000	26	c883,000
Tatal ..	147	Feb., 1952	\$2,531,000	+ \$797,000	35	\$17,457,000 + \$4,860,000
Canada						
Canadian National ..	23,473	Feb., 1952	17,346,000	+ 2,895,000	9	34,503,000
Canadian Pacific ..	17,037	Feb., 1952	11,775,000	+ 1,457,600	9	23,309,000
Various						
Baile Light* ..	167	Feb., 1952	36,960	+ 3,945	48	369,540
Gold Coast ..	536	Jan., 1952	382,363	+ 72,800	43	2,854,481
Mid. of W. Australia ..	277	Jan., 1952	58,380	+ 16,390	31	415,958
South Africa ..	13,398	8.3.52	1,990,899	+ 179,364	49	93,727,850
Victoria ..	4,744	Nov., 1951	2,143,056†	—	22	—

* Receipts are calculated at 1s. 6d. to the rupee.
† No comparison with November, 1950, when, due to a strike, services did not operate

Calculated at \$3 to £